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NEWS IN BRIEF

Trouble looms again at Times

CONFRONTATION at The Times over new technology is again looming, eight months after the newspaper's suspension was ended in relative amity. Times management is pressing the NGA, the typesetters' union, to discuss direct input of text by journalists and advertisement staff, while the union refuses to enter such talks, claiming it has a monopoly of keyboarding for three years.

Prescriptions trial

COMPUTERISATION of part of the Prescription Pricing Authority is to go ahead as a trial to see whether the whole authority should be similarly automated. Studies on alternative ways of doing this have been going for some time (CW, October 18, 1979). The authority pays chemists for the prescriptions they dispense.

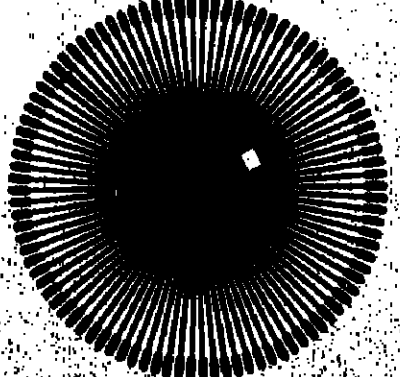
Power monitor

THE Hunterston nuclear power station in Scotland is to enhance its plant monitoring system with two Honeywell Level 6 Model 43 systems. Linking with existing 316 real time interface equipment, they will provide plant control room staff with status information about the plant's two reactors and generators.

Data entry boost

SOFTWARE to support data entry and file inquiry at up to three work stations has been added by NCR to its Intel 8080-based 8150 office computer. Called Multi Work Station Direct Processing System, the software rents for £330 a month.

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COMPUTER WEEKLY

Swedes plan guidelines for technology

A WATCHDOG has been set up by the Swedish government to study how computers are being introduced in Sweden and draw up guidelines for usage and development of new technology. A combined policy for industry, government and society at large will be worked out, and when thought necessary legislation will be recommended to Parliament.

The aim of the committee, called the Data Delegation, is to get a clearer idea of what effects computerisation will have on industry, government, and society, covering such areas as unemployment, working conditions, the distribution of power in society,

and privacy. There are already several bodies working on these specific areas in Sweden, and the Data Delegation is to co-ordinate their efforts.

The delegation does not fit in a formal way into the Swedish constitution but it is considered important enough to have a Cabinet Minister as chairman. Olaf Johansson, the Minister for the Budget. The 15 members consist of MPs from all five parties, regional and local government officials, and trade union representatives. Also there will soon be seven full-time staff.

The committee will probably not have any official power apart from its co-ordinating

role between existing agencies, nor will it have money to spend; its main influence would be in proposing legislation and regulations. Some of the existing agencies, such as the Data Inspection Board, are understood to be worried about interference from the delegation.

Delegation staff say it might have been a good thing had the body been established five years ago. The sort of problems that could have been avoided include eye strain in workers using VDUs and a reduction in the traditional free availability of Swedish government information to citizens since much administration is computerised.

Go-ahead urged for voluntary codes

VOLUNTARY adoption of codes of practice governing personal data in files should go ahead now, to test their practicality before they are embodied in legislation. This is the recommendation of the National Computer Users Forum, tentatively endorsed by a partial survey of members of the National Computing Centre.

The forum has told the Department of Industry that it is 'gravely concerned about

giving legislative enactment to the proposed codes of practice until sufficient experience is established." The NCC members said that, in the absence of government action, voluntary codes would be acceptable.

Only 10% of NCC members were questioned in the survey. Of the 200 respondents 90% felt there was a need for some form of privacy regulation soon, 75% were in favour of legislation, but only 50% regarded a statutory

data protection authority as essential.

Only half of the members replying had studied the practical implications of the Data Protection Committee's recommendations on their businesses. One-third had assigned responsibility for privacy to someone in their DP departments.

The forum has also recommended that codes of practice should encompass manual systems as well as automated ones, but two forum members — Central Computers and Telecommunications Agency and the Mail Order Traders Association, dissented from this, stating: "The Mail Order Association and the Building Societies Association both felt that codes should be voluntary and that legislation should 'only be enacted where necessary'".

Sacked salesman sell Jacquard kit

THREE sacked Jacquard salesman and three others have gone into business on their own to distribute the firm's word processing and small business equipment, only weeks after the direct sales operations they worked in closed down (CW, June 12).

The Knightsbridge-based firm, called Wordata, is headed by former Jacquard London branch manager Mario Guzzetti, who was offered a distributorship by his old firm.

OBE for viewdata inventor

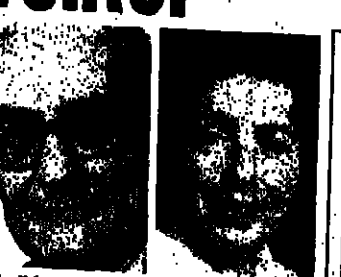
INVENTOR of viewdata Sam Fedida has received the OBE in the Queen's Birthday Honours. The award follows closely on that of the MacRobert Award for technological innovation which went to Fedida for his work on Prestel, the Post Office

version of viewdata (CW, December 13, 1979).

Fedida led the Post Office team that developed viewdata in the early Seventies. On his retirement in 1978 he became a consultant to Inspec, the NEB subsidiary marketing viewdata in the US. When these operations were extended last year with the formation of a new company, Oregon International, Fedida became technical director. He is now an independent consultant.

Another OBE goes to Steve Shirley, chairman of F International. She founded Freelance Programmers in 1962 to provide part-time work at home for women who were trained programmers but who had given up their jobs to raise families. This proved a highly successful venture and in the early Seventies, the company expanded with the establishment of systems operations and changed its name to F International. Mrs Shirley is also a leading member of the ECS specialist group for the disabled.

Other honours include a life peerage for Sir Arnold Weinstock, managing director of GEC.



Fedida. Shirley and an OBE for Professor Kenneth Hunt, who holds the chair of computer services at the Royal Military College of Science, Shrivenham, Wilt.

An MBE goes to Cecil Rickery of the Operational Programming Department at the Post Office Telecommunications Headquarters.

GEC picketed

PICKETING began on Tuesday at GEC Telecommunications in Coventry where 200 System X development engineers have been locked out during a dispute about pay and conditions (CW, June 12). ASTMS has made this dispute official.



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Canada books 20 stands at Compec

THE largest stand yet booked at Compec has been reserved by the Canadian government for its Department of Industry, Trade and Commerce.

Nearly 30,000 sq ft, the area of 20 stands, has been reserved for Canadian exhibitors, and many will be taking part in a UK technical exhibition for the first time.

Compec, the UK's major show of computer equipment and development, is at London's Olympia from November 4 to 6. This year's exhibition will be the biggest so far, with the Grand Hall and gallery completely full. So far 380 exhibitors have booked 788 stands and only a few units are now available to enable latecomers to take space.

Last year's record attendance was 34,745, 22% up on 1978, the first year that Compec was held in Olympia. It is expected that 1980 will surpass these totals.

Advance tickets at £1.50 each can be ordered from IPC Exhibitions Ltd, 40 Bowling Green Lane, London, EC1R 0NE. Tickets bought at the door will cost £2.



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Denial of Inmos change

From front page

consideration the options open to it.

Strings that may be attached to any further State funding could swing the Inmos decision to take the whole project into the UK and base all future development at the US site at Colorado Springs.

Although the government appears undecided about the worth of the field with its static RAM, the Inmos 1400, it is expected to start sampling of its 2187 for the months of 1981.

That is about the time Inmos hopes to start sampling its 64K dynamic RAM. Development is also well ahead on memory products.

Work on the company's plant at Cheyenne Mountain, Colorado Springs, is up to schedule and planned output there will be based on 2,000 units starts a week. Capacity at the projected UK factory would double that.

At present the research centre at Bristol employs about 100 people but recruiting has been hindered this year because of the uncertainty of the future of the venture.

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Briefing \$412m deal for Honeywell

HONEYWELL has been awarded a new 8-year maintenance contract by the Pentagon on the 36 ageing Honeywell 8000 mainframes that form part of the US Air Force's world wide military command and control system, WVMCCS. The \$412 million contract includes \$100 million worth of hardware updates.

The much criticised WVMCCS achieved further notoriety recently for generating two "Soviet attack" false alarms. They have been attributed to a defective chip.

16-bit Level 6

HONEYWELL is working on a 16-bit microprocessor version of its Level 6 minicomputer, following the path set by Texas Instruments with its TMS 9900 and Data General with its Micronova. Smallest Level 6 processor currently available is the 6/23, which is an AMD 2801 bit-slice emulation of the basic processor.

System 38 Cobol

IBM has announced an Anel 74 Level 2 Cobol compiler for its System 38 business database computer, hitherto only offered with RPG III. The compiler, costing £85.20 a month will be available in 1981.

CSS layoffs

NATIONAL CSS is merging its computer marketing and time sharing divisions in the US and making big layoffs. The combined division will market both remote time sharing services and the NCSS 3200.

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MP calls for national Info Tech plan

A NATIONAL strategy for information technology should be set up by the government right away in order not to let the immense opportunity in this industry "slip between our fingers." That is the proposal put to Industry Secretary Sir Keith Joseph by Kenneth Baker MP, chairman of the Conservative Backbench Industry committee. Sir Keith reacted sympathetically to the proposals, Baker told CW, and is now awaiting reports on further action by his department.

According to Baker, a single policy docu-

ment on Information Technology in the UK in the 1980s needs to be produced as an outline of the strategic thinking of the industry, to show the opportunities that exist and how they can be maximised. Baker also reiterated the call for the appointment of a Minister for Information Technology to act as a focal point in government to draw the diverse parts of the industry together.

The government should take a lead by introducing more information technology into its own operations, Baker said, for instance office automation in Whitehall, the

use of Prestel, and more computers in the Health Service. These should all be procured from UK firms.

Baker's other proposals include: adjustment of corporation tax so as not to discriminate against the services industry; an all-UK procurement policy, not just benefiting ICL; increased research and development; and promoting by the new minister of technology agreements with unions.

The new ministerial post would not entail extra bureaucracy, Baker said, because the departments involved already exist.

IBM aims for bigger WP slice



TO help it win a bigger share of the word processing market in the US, IBM has launched a low cost word processor and made major changes to its traditional sales policy. Meanwhile in Europe it is offering OEM peripherals for the first time.

Stung by the way it is Number 2 to Wang in the US word processor market, IBM is now enabling its customers to buy word processing equipment from whichever division is their principal supplier and data processing, general systems and

office products salesmen are to get incentives to push the word processing products of rival divisions.

As well as the new stand alone Displaywriter from office products division, which has a base price of \$7,895, IBM has added facilities to the 5520 shared logic word processor from general systems division, and announced that from next summer, users of the 8100 distributed processor will be able to run the 3730 word processing software under its DPCX operating system.

Only the last has been announced in the UK so far. The 3220, discussed two weeks ago (CW, June 12), is not yet available outside the US.

The US announcement is accompanied by a "statement of direction" from IBM which says that its intention is to provide, **Turn to page 5**

OFT, ICL agreement is 'a sell-out'

AFTER several years of complaints by users and manufacturers, ICL has been forced by the Office of Fair Trading to change some of its practices relating to the maintenance of old machines and the attachment of non-ICL hardware to ICL systems.

However, the changes are far from satisfactory according to some of the complainants, and ICL is still the subject of an investigation by the EEC Commission that started in 1978 (CW, September 21, 1978).

The most significant aspect of ICL's policy not to be changed is the limitation of guaranteed maintenance to seven years on most machines. John Young of Computer Resale Brokers, the most vociferous of the complainants, has described the agreement between ICL and the OFT as a "sell-out". He said that ICL maintenance policy had rendered old 2803s and 2804s

virtually worthless following the launch of the ME29, and he pointed out that the maximum guaranteed maintenance period on the ME29 was only five years so that ME29s would lose all their value even quicker than 2803s and 2804s.

However, one significant change made by ICL is that it will no longer apply a 20% surcharge for maintaining machines that it agrees to service after the seven-year contractual period is complete. Stuart Gould, chairman of the ICL Computer Users Association, said that this would be welcomed by users but added they would continue to talk to ICL about the maximum guaranteed maintenance period.

The OFT itself said in its statement on the agreement that it reserved the right to reopen its discussions with ICL if "new significant evidence appears".

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Apple IIe

Downtime

by Chad

Wrong note

I REMEMBER years ago my father trooping around shops after my mother, looking at refrigerators or whatever, and on being shown the latest model with all its fancy features, remarking sourly, "I suppose this one plays a tune."

Nowadays of course, he would be right.

I was strolling past the Sharp stand at an exhibition the other day and there, lo and

behold, was an electronic cash register which played a tune.

I asked the chap on the stand what the purpose of the tune-playing was, and he replied with refreshing candour that he had no idea.

The speaker on the machine is principally for repeating to the world in a Dalek voice what the total is that is already shown on the digital display.

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I USED to wonder why it was always the Gas Board that was the butt of computer atrocity jokes. This bill which Mrs Wilson of Edgeware has just received shows why. According to the North Thames Gas Board, 3824-3873=951. Apparently the "present" reading was not estimated but was an actual one. Be that as it may, hand up the naughty programmer who forgot his overflow routine!

Date a cow!

WORD reaches me from Ontario that an enterprising firm has started a computer dating service for cows, to enable our bovine friends to find suitable partners for rolling in the hay. I hope it works better than the corresponding human services. I will refrain from making any related remarks about the companions these have produced for me.

However, I am reminded of the story about the small boy at the country school who was late one morning. When quizzed about this by teacher he replied, "Oh, I had to take the bull to the cow."

"Can't your father do that?" asked the teacher.

"Oh, no, it has to be the bull," came the answer.

MICHELIE'S PRIVATEVIEW

'Man's brain is the computer—his mind is the programmer'



Professor Donald Michie is head of the Machine Intelligence Research Unit at Edinburgh University.

AFTER my arrival at Rugby School at the age of 13, I and a fellow inmate were selected by the Head of House to be his fags (personal slaves) — not, as readers of Tom Brown's School-days might surmise, on account of our personal attractions or fawning demeanour, but because of our known readiness in theological discussion.

Our 17-year-old master, a raven-haired beanstalk with hollow cheeks and tireless intellectual intensity, in later life became a Jesuit priest. Now, however, his restless inquiries were frustrated by total unwillingness on the part of his contemporaries even to listen, let alone discuss with him his concerns about religion.

I and my co-fag, now a Companion of the Bath and solicitor to a group of government departments, much preferred Saturday evening of obligatory theoretical sparring to the normal duties of polishing boots, cleaning windows, banging belts, scrubbing the floor, and other such chores.

The details have faded, but the antithesis between science and religion was central. Memory returned recently when I took part in the 1980 Science and Religion Forum at Manchester. I was stirred also by memories of a different kind and time on meeting Sir John Eccles as fellow-speaker, now in his belated seventies.

As one small post-graduate dot in a vast crowd, I attended in 1952 the great neurophysiologist's Weynflete Lectures at Oxford. He interwove profound factual analysis of the brain with dualistic mystification (so we felt) concerning the mind. At his last lecture an extra slide was unaccountably projected on to the screen. Before our eyes hung a brilliantly executed pen-and-ink drawing of Sir John and assistants struggling with a recalcitrant Ghost in the attempt to re-insert it into the Machine. Some impudent unbeliever had tampered with his slide sequence.

I asked him if this still summarised his position on the mind-brain problem. "You could say today," he answered "that man's brain is the computer, man's mind is the programmer. A person cannot choose the particular computer God gives him. He must simply do his best with it."

My brief at the forum was not to philosophise, but to give an account of the current state of development of artificial intelligence and its applications. I arranged my presentation so as to emphasise that the ultra-clever machines of mainstream computing are a great deal more threatening to human autonomy than the humanly responsive creations of AI.

Problems of morality surfaced in a later panel discussion moderated by the Bishop of Durham. For example, once robots have been developed to a sufficient level of intelligence for the question to make sense, should people feel free to mistreat them? My proposal, generally supported, was that the decision can be soundly based on moral grounds quite independent of speculations about consciousness. We can decide that it is wrong to make a sport of teasing cats, without first having to settle such questions as whether a cat is conscious, or has a soul.

The matter will become further complicated at such future time as an expert system can capture the specialist skills of a world expert in such faithful detail that, although he may

now be dead, colleagues and friends interacting with the system recognise his personal style of thought and respond to the foibles and fancies of the thrilling intellectual companion whom they knew. To wipe out such a system irretrievably, rather than archiving it, was unanimously felt to be reprehensible. One participant likened it to the burning of the great library of Alexandria, attributed to Julius Caesar. Perhaps, though, the desecration would run even deeper than this image suggests.

Perpetuated fragments of responsive behaviour surely have a claim to sanctuary deeper in nature than the claims which can be advanced for books, photographs, tape-recordings and other passive relics.

It was over the phenomenon of computer induction that philosophical feeling was truly aroused. For those who find computing technology disturb-

ing, comfort is derived from a slogan that goes "You only get out what you put in!", and even more comfort from another, which goes "A computer can never be creative!" As best I could, I deflected the stream of collective anxiety to the point where it properly belongs, namely to the nature of the computational structures created by computer induction. Are they to be black boxes... white boxes... grey boxes?

This is the issue to which social concern, and ultimately legislation, will need to be directed.

Donald Michie

TEN YEARS AGO...

From Computer Weekly of June 25, 1970...

WORK on a new 125-acre headquarters site at Cosham, Portsmouth, for IBM is to start before the end of the year... The first Honeywell 4200 to be installed in Europe is now operational at the New Southgate computer centre of Standard Telephones and Cables in London... Talks have begun between ICL and CII on a

new European computer rapprochement... A team of 10 software specialists has left IBM France to form an independent software house, to be called Computer Service... One of the latest newcomers to the European computing arena is SE Laboratories of Florida, which has opened a Paris office.

Fax to Canada in just over a minute by satellite

THE first link in what could become a major international public facsimile service was launched last week between London and Toronto. Operated by the Postal Business side of the Post Office and the Canadian postal authority under the name Intelpost, the link is by satellite between selected post offices in the two cities.

Inaugurating the service Ron Dearing, chairman-designate of Postal Business, said the UK saw this as the first step in an international network; but the US Federal Communications Commission has rejected proposals for Intelpost put forward by the US Post Office and RCA Global Communications.

The original plan was for Intelpost to come into operation last year with links from the US to the UK, France, West Germany, Holland, Belgium and Argentina. Iran was also among the countries that had indicated an interest in the service.

However, the FCC rejected tariff proposals put up by RCA, and another major telecomms company, Western Union International, protested to the Commission that RCA pricing

for Intelpost undercut the already established RCA Q-fax service. This service operates between RCA bureaux in the US and PTT offices in about a dozen countries including Japan, Hong Kong, Australia and Switzerland.

The tariff suggested by RCA for Intelpost, which it said did not differ greatly technologically from Q-fax, was 60 cents a page with a minimum volume requirement. The Q-fax rate is between \$6 and \$12 a page. RCA has made no comment on the FCC objections.

Meanwhile the London-Toronto satellite link is costing £4 for the first sheet plus £2 for subsequent sheets of the same message. Each A4 sheet takes about a minute to transmit. If the message is collected by express post it costs a further £2 and another £1 for optional special delivery in Toronto.

To give the service a starting boost there is a half price offer for the first three months. Door to door delivery takes from three to seven hours during the normal working day.



An urgent document is fed into a scanning machine at the Royal Mail's Intelpost Centre at the Stock Exchange Post Office in London. The facsimile will be in Canada in just over a minute.

High speed Z8000

A HIGH-SPEED version of its Z8000 16-bit microprocessor has been announced by Zilog, and it intends to extend the power of the chip further by adding linked specialised processors in the future.

The new version of the Z8000 runs at 6 MHz — 167 nanoseconds — and is offered in two packages, the Z8000A which has 48 pins and can address up to

eight megabytes of main memory, and the Z8000A in a 40-pin package addressing 64K-bytes.

The Z8000 features an architecture which enables additional specialised processors to be linked to it. Zilog is looking at a number of add-on products such as a fast Cobol processor and an array processor.

FOCUS

Motivation for DPMs

IN a period when improved DP productivity is high on every installation agenda, motivation of both personnel and management is becoming an ever more important factor. Motivation can take many forms ranging from direct encouragement to dire threats, with a little general pleading and cajoling thrown in for good measure.

In the States, however, there is no room for such subtleties. The latest salary survey reveals that in the land of The Big Apple, the DPM is taking a substantial bite, the average DPM's salary in 1979 being \$27,000. The front runners in the US pay stakes are public utilities and finance, which probably reflect similarly in the UK. Obviously, therefore, UK DPMs seeking cash incentives would be advised to either move into government service or to emigrate. If such a prospect does not turn on the average UK DPM, alternatives are not far away.

According to Ted Cluff of the Institute of Data Processing Management, a definitive motivation list for DPMs would include job satisfaction, bonuses, consultative management, working conditions, salary and prospects.

Not all of us would agree with this selection and many would be prepared to tolerate grotty working conditions provided the job itself had adequate compensations.

The prospect category, meanwhile, offers all things to

all DP men. For many it suggests the prospect of the early introduction of high-level computing technology — for others, early retirement.

Having received the motivational message, it is the turn of the DPM to encourage his team. Where cash is tight and hours are long, the introduction of a portable radio in the ops room, a covered motorcycle, and in the car park or a poster of Be Darn! could well improve morale and, hopefully, productivity.

For the installation as a whole, winning fame and prestige could possibly work wonders. Winning the Computerstars competition could be just the thing. The running event should appeal in particular to the DPM, who is noted for spending much of his time charging about in all directions. This event is not recommended for system analysts who specialise in running round in ever smaller circles.

The throwing event is very much for the programming team who are capable of throwing the complete installation into total confusion. In their case, a contest featuring loops would be appropriate.

Motivating the DPM to take part will of course be the major challenge. His role might well be limited to scheduling training periods. Future aptitude tests could well include a dozen pre-gaps followed by half an hour's jogging.

Rules say Cluff will have to stand again!

BY a constitutional quirk, the Institute of Data Processing Management's full-time secretary general Ted Cluff will have to stand for election again at the institute's 1980 annual meeting. It is being held at the Bloomsbury Centre Hotel, Cornhill Street, WC1 on Thursday, July 17 at 9.30 am and, in addition to Cluff's position, five members of the institute's ruling council stand down. Nominations for all posts close on Tuesday, July 15 at 5 pm.

Cluff, who signed a seven-year contract with the Institute will have to go through the ballot box next year as well because it is now too late to change the rules for the 1980 meeting.

The meeting will be asked to endorse increases in membership fees of from £8 to £15 for an associate and from £12.50 to £21 for a full member.

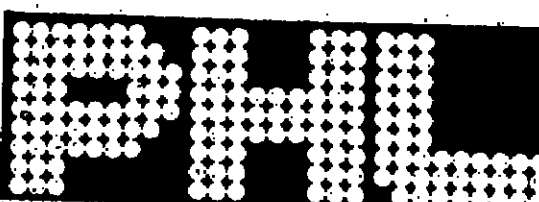
The membership total currently stands at 5,500 and it is expected to pass the 10,000 mark in early 1982. Currently, about one third of all the applications are either coming from or are being sponsored by BCS members.

IBM aims for more WP sales

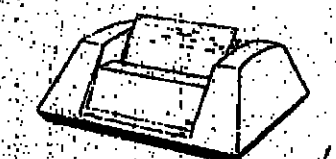
From front page over time support for facilities for filing and transmitting documents between all the word processing products included in the announcement.

It is forecast that by 1990 a substantial part of IBM's revenues will come from OEM peripherals sold to all comers (CW, June 12), and the company has taken its first steps in this direction with the European

launch of its 3101 Teletype-compatible display and the associated 3162 thermal printer. The products are being sold in the UK through IBM's new direct marketing centre in Chiswick. The 3101 is an Ascl display with separate keyboard, attachable to IBM and other manufacturers' computers and running at speeds between 110 and 9,600 bps. The printer is a thermal matrix printer running at up to 40 cps.



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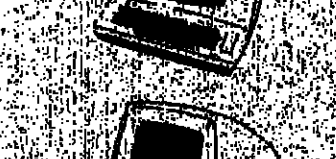
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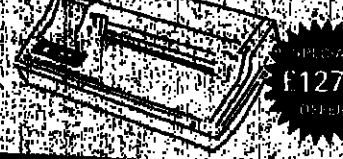
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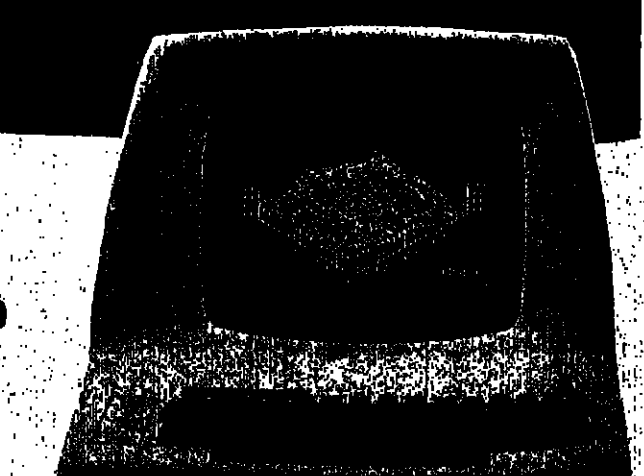
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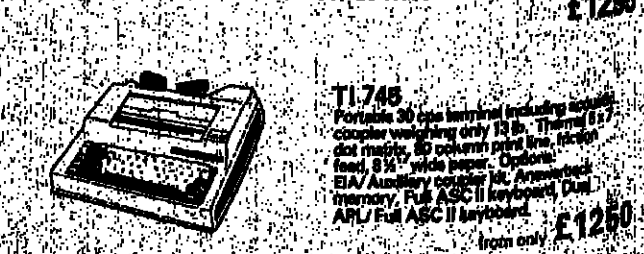
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Dispelling the myth of the 'backward North'

YOU can find anything you want in London, so they say, and indeed it does seem that, in order to look at most aspects of the computer world, you don't have to stir very far from the metropolis.

As many companies have their head offices in London, it is not only interesting but a refreshing change to find one which is based in the heart of North-West England with the London office only a sub-branch.

Ask anybody what they think of Liverpool and they will probably say that it is dirty, grimy and wet but the people are marvellous. Marvellous people are few and far between and the notion that most of them are collected in Liverpool is a bit hard to swallow. However, if you travel North there is a

striking difference in character and attitude, which does not, however, make business there any less fruitful.

KBS Computer Services is a 10-year-old private company which is just about to become a limited company. Its head office is an impressive Victorian building in Liverpool's Dale Street. Bowers of Kennedy, Rovers and Smith, the original KBS, is now the sole proprietor of the company which is engaged in running commercial and TOPS courses, contract work and a data prep bureau. It is also OEM dealer for the Texas Instruments DS99010.

The company first started running TOPS courses in 1975 when it was approached by the Manpower Services Commission and asked to use the training expertise it had cultivated in holding commercial courses, something Bowers had entered after finding an appalling lack of knowledge in the industry.

An IBM 4331 has recently been installed at the Liverpool office and the firm hopes to set up a bureau there. KBS has offices in London, Coventry, Leeds and Birmingham. The Coventry office has an ICL 2903 and also runs a recruitment agency.

The wide spectrum of activity covered by KBS does not impair its success in any one venture, but surprisingly the company does not make a very big profit. "Bowers, the proprietor, is not the sort of man to focus all his attention on money-making," explained Andy Feather, advertising and promotions manager for KBS. "Most of the money we

make is ploughed back into facilities for the students."

The students at Liverpool that we spoke to confirmed the fact that they are very well treated and are getting the most out of their training.

Also, it was reassuring to see that on the day we visited KBS, a special open day was being held for representatives of the Manpower Services Commission and Job Centre workers.

We have written before on this page about complaints from prospective students and employers that Job Centres do not have adequate information to give to those who wish to pursue a career in computing.

On this particular day in Liverpool, people from the MSC were treated to a film show and introduction to computers, an explanation of KBS TOPS courses,



TOPS students at work on the North Star Horizon microcomputer.

selection procedure and methods of training and were then given the aptitude tests themselves to attempt.

This part of the open day caused not only great hilarity as those present realised their unsuitability to the job of a programmer, but great insight into the sort of people who could find success in computing.

The attitude and application of KBS TOPS students was impressive. In recent examinations of TOPS courses we have always found an odd and interesting mixture of backgrounds, and Liverpool proved to be no exception.

A barman, a croupier, a used-car salesman, a teacher and an electrician were among the ones we interviewed, and even a former trainee who has passed through the doors of KBS to programming success.

Both the ex-croupier and the ex-salesman said that they had to take considerable cuts in salary to go on the course, and that their starting salary on starting work would also be a great deal less than they were coming out with before. They also said that they had to put in quite a few hours, working most nights until nine or later, coming in at weekends and generally losing out on social life.

But there were no complaints. "You don't get many chances in life," said one student, ominously. "We're very lucky to get this one and if we mess it up we don't get another."

KBS TOPS students are carefully selected not only on the grounds of their success in the aptitude tests but on their general employability. As one MSC official pointed out, "There's a world of difference between training and placing."

One student had a job waiting for him on completion of his training, in Norfolk, where he was moving with his wife of only a few weeks. Students can state the areas in which they would prefer to live and work and the placement department, which arranges interviews and job nationwide, tries to adhere to their choice.

KBS teaches PL/I, Cobol and

Assembler on its programming courses, but as the courses are arranged so that people are trained in the correct ratio to vacancies, most do Cobol.

The students had all enjoyed the course and although not confident of complete success were sure that they would start their new jobs — two weeks before the end of course — students had jobs to go to and be useful from day one. One student said that he thought the training and depth of knowledge he had acquired was equivalent to 18 months' commercial experience.

No-one is going to suggest that all firms in the North-West operate in the same way as the similar headquarters or sell the same altruistic principles. Neither could they say the companies in the area are as successful, less business-like or in any way behind those in the South.

However, myths still do exist about the "backward" North and it is encouraging to find a firm of the size and diversity of KBS which is rapidly turning out highly qualified local people into the computer industry throughout the country.

Puzzler

As part of his homework recently, my youngest son had to work out 1574. The answer ran to eleven digits, and what with his trying to squeeze it all on to the same line of his exercise book, the last figure came out so small that I couldn't read it. So his (correct) solution looked something like this:

95,388,992

However, I had very little difficulty in deciding what the first digit was supposed to be, without the aid of a calculator. Would you like to hazard a guess, before turning to page 9 for the solution?

SOFTWARE FILE

Green light for Ada production compiler

THE multi-million dollar contract for the first Ada compiler has gone to Softech of Massachusetts. The US Army communications research and development command, Caradcom, of New Jersey, has commissioned the company to build the first production compiler for the long-awaited high level language under the management of Dr Larry Weissman.

APL meeting

APL language originator Ken Iverson is to speak with Gene McDonnell on "Teaching and APL" at an open meeting at the Cafe Royal, Regent Street, London, on Tuesday, July 1. It opens at 8.30 for 6.00 pm and admission is free.

User group

A USER group for the MVT/Famos operating system has been formed by Equinox Computer Systems of London. MVT/Famos is a multi-tasking, multi-user disc operating system which runs on most 8080 and 280 microsystems.

Equinox has also announced that CAP's MicroCobol is now available on the Equinox microcomputer system, including the range of applications such as AutoClerk and AutoIndex.

Marketing deal

THE online programming system Acep, previously sold by Intel under the name Prepro, is to be marketed and supported by Software Module Marketing of Sacramento, California.

Acep interfaces directly with CICS/VS, and also with remote BTAM, TCAM and VTAM as well as local 3270s. IBM's VSI and MVS operating systems are also supported.

Pacs goes online

PACTEL has announced an integrated online version of Pacs, the inventory and control system, to run on ICL ME28/2803 series.

Honeywell, which teamed up with Softech in writing the winning proposal, is to assist in the compiler design and building as a subcontractor. Honeywell's French associate, CIT-Honeywell Bull, will act as consultants on the language.

The Ada language is considered the next generation standard language for Department of Defence activities, and the contract is a milestone in its evolution. It will result in a compiler hosted on the Digital Equipment Vax 11/70 and PDP 11/70, and the US military computer AN/GYK 12.

Softech specialises in the definition, analysis, design and implementation of computer-based systems for government, commerce and industry.

In the UK, preparations for the Ada revolution are being made by the Ada consortium, in which three otherwise rival companies have pooled their resources.

Representatives from SPL, Software Sciences, and Systems Designers have formed a single team of Ada expertise so that the UK may keep abreast of the vast market shortly to be generated by Ada. The consortium's main concern is that the UK should have tools based on the home market to compete against US and European products.

A consortium spokesman welcomed the compiler contract as a sign that Ada is alive and kicking. "It reinforces our view that the prospects for Ada are good. But it is likely that the coming US Air Force compiler will be best as a possible future standard and it is unfortunate that the US Army has chosen to go its own way."

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by Claire Gooding

100 firms at first Euro show

WHAT is claimed to be the first European show to be devoted entirely to software is to be held in Paris next May. Run by a UK company, Executive Conference Organisers, it will be a three-day event in English and French and will include an exhibition. About 100 firms are expected to take part.

The plan is to provide each exhibitor with a terminal with access to remote machines in order to demonstrate products. Details from Robert Joseph, Acorn Studios, 9A Byfield Gardens, Barnes, London, SW13 9HP. Tel: 01-748 0287.

OS version

AN OS version of the job accounting and billing system from Computer Associates, CA-Jasper, has been released. It provides the report generator Wizard as part of its facilities and is compatible with the DOS version. It costs £5,500 from CA in Maidenhead, Berks.

Two challenge 2900 transaction market

TWO developments independent of ICL are likely to live up to the ICL 2900 transaction processing market. A newly-formed consultancy offering a complete transaction processing service for 2900s has arrived on the scene at the same time as Vecoms-TP2900, an online applications control system for 2900s running under VME/B, from Gresham Computer Services.

Consultancy Terney, Edge and Morfitt (Team) is said to have broad experience in the development of 2900 software. TP services and VME enhancement. Its services include TP design and implementation, project management and transition to 2900 TP under VME, and advice on sizing and performance as well as answering day-by-day problems.

Gresham's aim with the Vecoms-TP2900 was to build on the TP skeleton provided by ICL to create a total online environment for the implementation of TP on the 2900, as well as providing a simple method of transition to ICL native mode of operation for users of other TP systems.

The areas where Gresham has concentrated effort in improving on ICL's standard teleprocessing option, TPO, and teleprocessing message systems. TPMS are privacy control, message handling, security application control, and the provision of online performance data.

The system, which was developed using Cobol in 13 man-years, boasts an average response time of two seconds on nine terminals. It was developed with ICL's approval, and is already running at one site.

Vecoms-TP2900 costs £18,000, with £150 a year maintenance after the first year. A VME/K version is planned.

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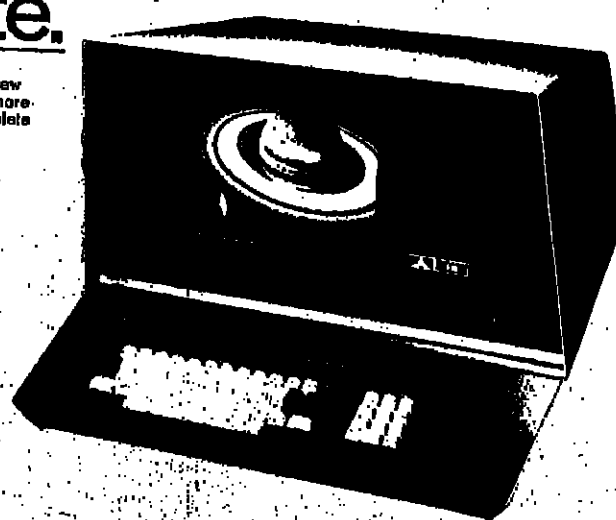
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OP SPOT

IBM rules OK on the operator training scene

MANY an installation is willing to spend large sums on the latest in technology, but resorts to penny-pinching where operator training is concerned.

The latest in hardware and software is snapped up almost regardless of cost, much to the delight of management and development staff alike.

But the operators — the people responsible for the equipment, day in, day out — often receive very little in the way of formal training. They're expected to acquire their skills as they go along. Odd sense of values, don't you think?

For be it from me to dismiss informal, hands-on training — it enables staff to learn the practical side of their work.

However, it is my view that such training is rather limited and must therefore be supplemented by formal courses.

It was for this reason that BOC Datasolve's operator training centre in Old Park Lane was featured on this page some weeks ago (Op Spot, April 17).

Let people think that Op Spot is biased in favour of BOC Datasolve, let's look at a few other companies and the operator training courses they provide.

"IBM Rules OK", as the company we contacted don't provide anything for ICL or operators of other manufacturers' equipment.

Infotech Operations runs a wide range of courses including

those relating to the IBM OS operating systems, DOS, DOS/VSE, DOS/VSE, data control techniques and telecommunications. The basic teleprocessing course is IBM-based and is intended primarily for sites which are about to implement a teleprocessing system.

The company also runs an advanced teleprocessing course intended for experienced operators and TP controllers. Both courses are IBM-based and are held in London on a three-day residential basis. The fee is £345, plus hotel expenses.

Peter Young, manager of forums and courses at Infotech, told me: "The advanced TP course examines data communications in real time and teleprocessing systems. It goes into fault diagnosis, reporting and recovery techniques."

Now, some managers contend that they can't let their operators go on courses because they don't have sufficient cover.

Well, if you're an operator at a site with IBM kit and you have come up against that sort of excuse, why not tell your manager about the video courses available from Deltak, a part of the Business Intelligence Services Group.

The beauty of the Deltak courses is that they can be followed on-site during the day, evening or night shift.

All your manager has to do is buy the video equipment (Deltak will give him expert advice on this) and rent or buy the appropriate courses.

Courses of interest include 370 architecture, the IBM OS operating systems, DOS and DOS/VSE. A DOS/VSE course will be available soon.

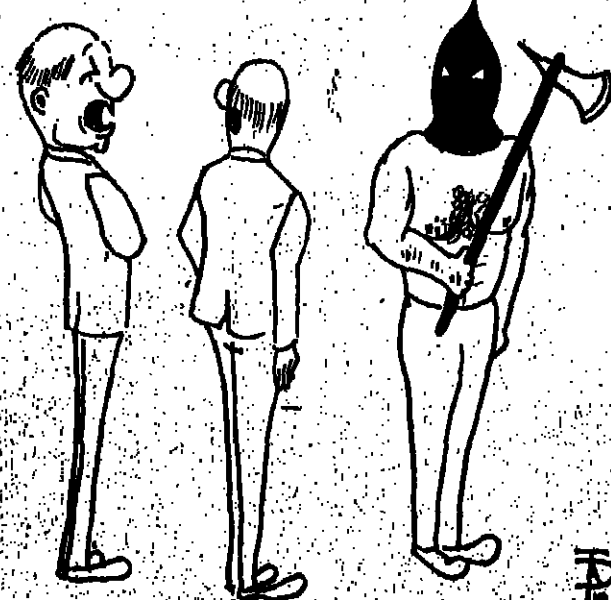
If it's operations supervision and management courses you're after, why not try Hoskyns Education, who are based at 91-93 Farringdon Road in London. Tel: 01-242 1851.

Hoskyns Education's week-long operations supervision course costs £245 per person. It covers such matters as decision-making, staff appraisal, staff training, and verbal and written communication.

Infotech's address is: Nicholson House, High Street, Maidenhead, Berks. Tel: 0628 35031. And Deltak's: Deltak Ltd, Banda House, Cambridge Grove, Hammersmith, London W6. Tel: 01-741 4711.

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by Bernard Allen

Can you take TOPS students?

HOW about taking a TOPS operations student for two weeks' practical training at your installation? Borehamwood College is looking to place such students from July 7.

This part of the TOPS operations course provides an excellent opportunity for installations looking to recruit operations staff at the junior level. The students hope to find sites

near their respective home towns. They hail from the following areas: Stevenage (2), St Albans, Norwich, Hove, Luton (2), Wood Green, Northants, Watford, Hitchin and Sandy in Beds.

For further information, contact Derek Pinnock who is TOPS operations lecturer at Borehamwood College. He is available on 01-853 6024.

Manual v automatic scheduling for the data centre manager

THE typical installation copes with a wide range of problems, catering for the needs of many types of user.

Thus we have the wide use of online and real time systems, as well as batch, with hardware being placed in the hands of users.

Consequently, decisions on which user gets priority are much more complex making some kind of scheduling system necessary, according to a portfolio from Auerbach.

Called Developing a Data Centre Scheduling System: Overview, it is one of the latest additions to Data Centre Operations Management* and discusses the merits of both manual and automatic scheduling systems.

The author explains how a scheduling system helps the manager deal with such matters as unhappy users, user misperception, and equipment under- and over-utilisation.

On users, he says: "The DCOM (data centre operations manager) may actually be apologising for a problem caused by the user. A good scheduling system enables the DCOM to compare planned events with actual events and improve job flow."

Regarding equipment under-utilisation, he comments: "Scheduling cannot completely overcome the effects of a poorly configured system or improve poor operator performance. However, an effective scheduling system can help the DCOM deal more effectively with these problems by enabling him to identify the real cause of the problem."

The author points out that proper scheduling can improve the utilisation of any critical resource and touches upon the following areas:

● Input control. Late input almost always affects the schedule. The input clerk should know not only when the input is to arrive, but also when it is due, in data entry, the next function

to be performed.

● Data entry. Data entry should be aware of the number of documents, their time of arrival, and when the input is due on the machine.

● Data control. It is up to the scheduler to let data control know when the job is due on and off the machine. Sufficient time should be allowed for job set-up, JCL preparation and checking output.

As to the machine itself, he says that block scheduling, where certain resources are dedicated to a given function for a certain time, is the simplest and most widely used form of scheduling.

*Data Centre Operations Management. £120 including bi-monthly updates. Distributed in the UK by Computer Aid for Management, 18 Great Portland Street, London W1. Tel: 01-637 9098.

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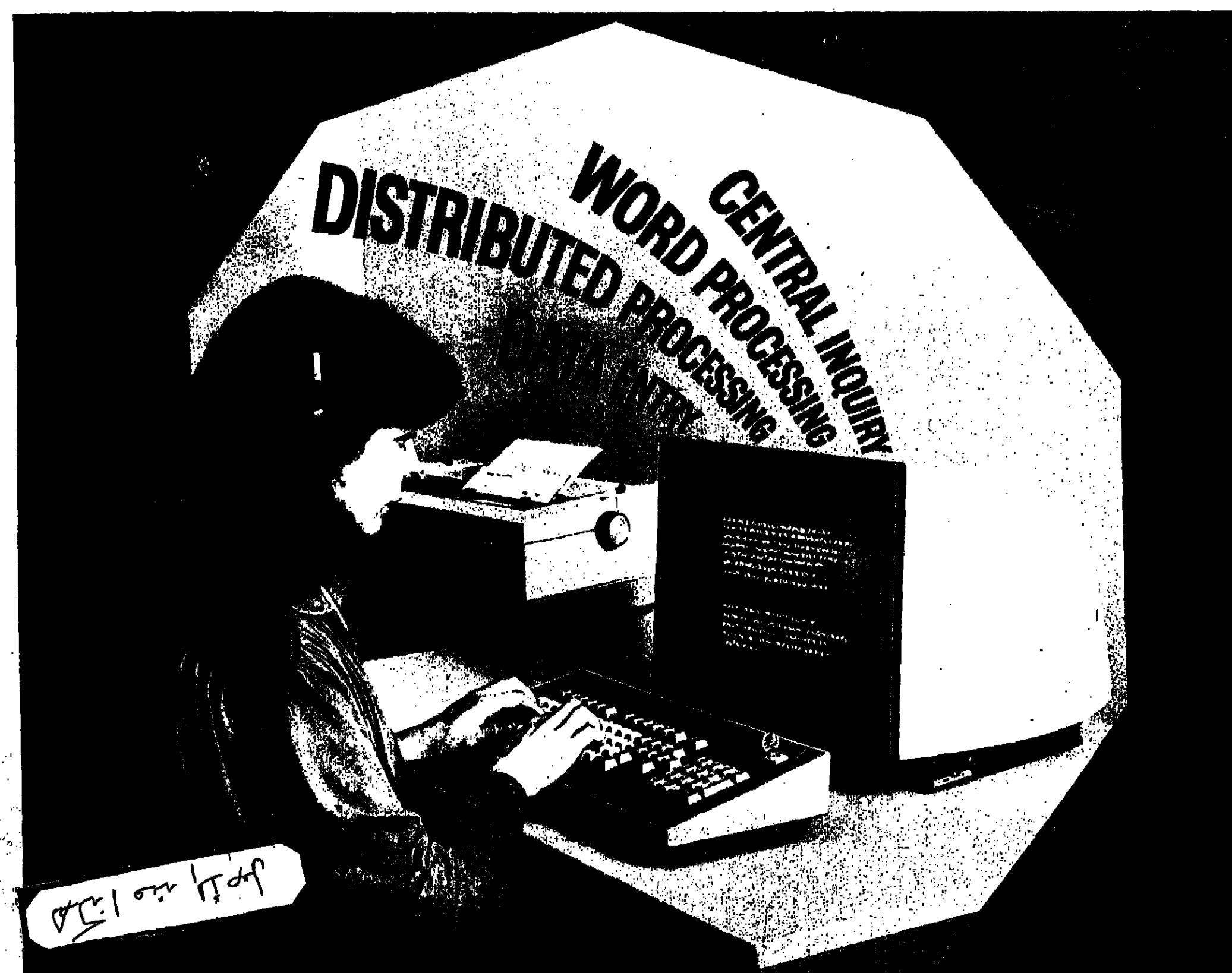
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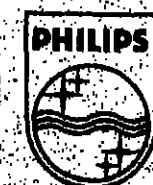
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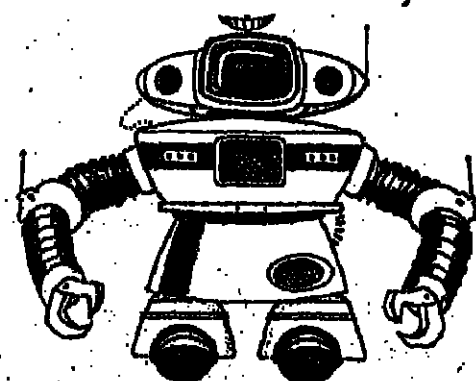
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PEOPLE and EVENTS



CAN you spot Scin Computers' sales director in this picture? The clue is the tiny letter R on the cuff, and the man is Noel Atkins, who is also a Lieutenant-Commander in the Royal Naval Reserve. Atkins received the Royal Navy's Reserve Decoration from Rear-Admiral Williams, Flag Officer Midway. The Decoration is presented for long service and good conduct. Atkins has been a serving Reserve officer for 14 years.

Selling Scotland in Silicon Valley

THE City of Glasgow is to be promoted in the US by a newly-appointed Business Development Executive, Edward Brodie. His brief is to sell Glasgow as a trade and investment centre to companies seeking to expand their operations or link up with Scottish companies.

Brodie will be based in California for one year, during which he will make contacts in the business community, promote Glasgow and the West of Scotland as a base for industrial expansion and identify outlets for Scottish products and know-how in the US.

Later, he may move on to other parts of the US, Japan or Europe. Brodie is also deputy chairman of Insight Business Systems and managing director of the Black and Edgington Group's computer division.

Kevin Kelly has been appointed general manager of Pensions and Insurance Computer Services, the division of UCSL in which he was a partner before its acquisition by UCSL in 1978.

Kon Mace has become sales manager computer systems with ITT, and Peter Harbour is product sales manager, viewdata systems.



Brodie

Roland DeSilva has been made director of international operations with Auerbach Publishers. Until recently he was a publisher with Chilton International.

Brian Arnott has joined Century Data Systems Inc in the newly created position of director of European marketing. He will be based in Bracknell, Berks.

OBITUARY

Sir Vincent de Ferranti

SIR Vincent de Ferranti has died at the age of 87. He became chairman and managing director of Ferranti Ltd in 1930 after the death of his father. The atmosphere which was created under his leadership was very favourable to research and led to the company's major contribution in the electronics field.

It was owing to his encouragement that Ferranti's pioneering work on the digital computer was undertaken, in collaboration with Manchester University.

Sir Vincent remained as managing director of Ferranti until 1969, and as chairman until his retirement in 1983.

Engineering prize deadline approaches

A £500 PRIZE is awarded annually for a practical contribution to the advancement of electrical or electronic science or engineering. It is the Karl Heinrich Gyr and Heinrich Lands Commemorative Prize, and is administered by the Council of the IEE on behalf of the donors, Lands and Gyr Ltd.

The prize went last year to Dr T. G.

Blaney for his work on the application of the Josephson Junction to research into high frequency microwave and laser systems.

The deadline for applications is next week, June 30. Forms and further information about the award can be had from the Secretary, The Institution of Electrical Engineers, Savoy Place, London WC2R 0BL.

NRDC chief

DR JAMES CAIN has been appointed managing director of the National Research Development Corp, succeeding W. Makinson, who retired at the end of May.

Dr Cain has a PhD in chemistry and worked as a research biochemist before joining NRDC in 1965. He has been chief executive of NRDC's department of applied science since 1971, and a member of the corporation since 1973.

Plessey Semis MD appointed

PLESSEY Semiconductors has a new managing director, Douglas Dunn, who has joined Plessey from Motorola UK, where he was deputy general manager of the Enst Kilbridge operation.

Dunn will be based at Swindon, Wilts and will report to Melvyn Larkin, managing director of the solid state division.

Chairman of CEI

CHAIRMAN of the Council of Engineering Institutions for 1980/81 is Dr Percy Allaway, chairman of EMI Electronics and a past president of IEE.

Elected vice-chairman is Bryan Hildrew, managing director of Lloyd's Register and senior vice-president of the Institution of Mechanical Engineers.

Jim O'Hagan has been appointed director and general manager of Datacall, and David Sheppard has been promoted to bureau manager, with the responsibility of marketing technical packages for the engineering and chemical industries.

James Stark has been appointed a director of V-Ard, the engineering consultancy. His previous appointment was that of manager responsible for control systems, simulation and microprocessor applications.

Manfred Orenzetter, previously European distributor manager of Rockwell's electronic devices division in Munich, has become sales manager for Central and Southern Europe with the division. Leonard Sim has joined the division, as sales manager, from Ferranti Semiconductors.

DIARY

JUNE 26-27
Meeting: IBM CUA operations group, Unicorn Hotel, Bristol.

JULY 2
Applications of microcomputers in civil engineering, conference and exhibition, The City University, Dept. of Civil Engineering, City University, London, E1C 6HJ. Details: Jim Lind Gifford, 01-253 4399 ext 210.

JUNE 26
Planning polystyrene users' group, AGM, University of Surrey, Guildford, GU2 5XH. Details: David Bell, 043 71241 ext 470.

JULY 2
Planning programming approach to crew scheduling, ECS Mathematical Programming Study Group, London School of Economics, London, E3C 2JH.

JULY 2
IBM Guide-SET group meeting, IBM Research, Zurich, Zurich, EC2 2JH. Details: 020 8104.

JULY 2
Lawyers in the Electronic, conference and exhibition, Society for Computers and Law, University of York.



Greenwood

Scott

Mike Greenwood has joined Data Logic as training and development manager. Previously he was training manager for Spillers-French Milling, Chris Scott, previously rack and stack manager with Codor, for Data Logic as Southern region manager for the customer engineering division.

Stewart Smith has joined CM Scientific as manager of the C group, from Plessey.

Liveware File
by Don

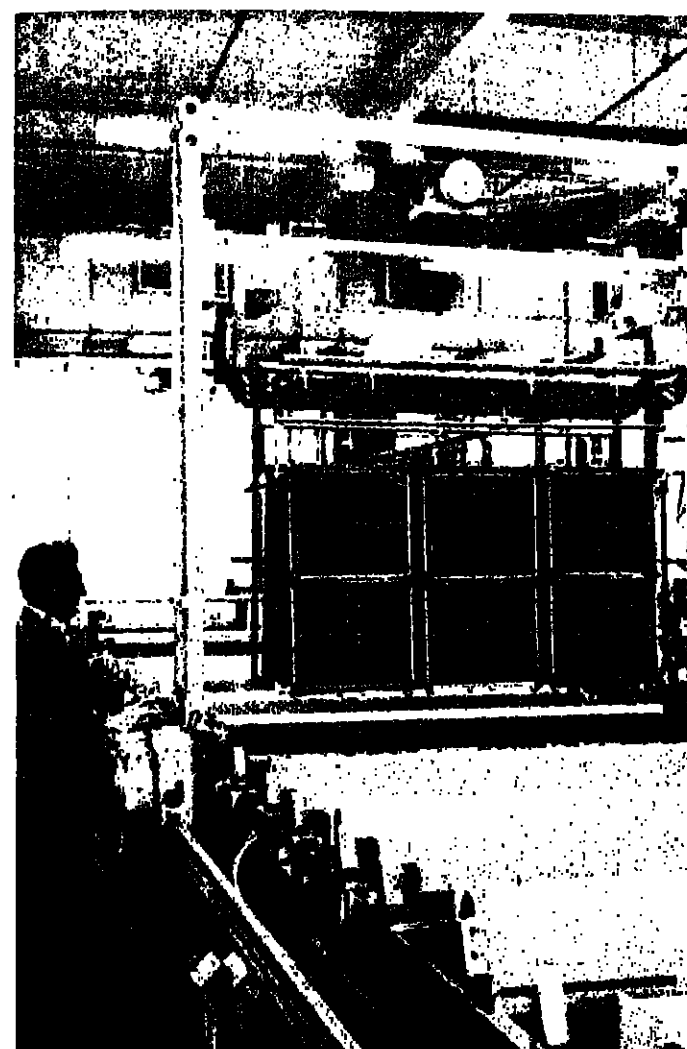
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MYNEX SYSTEMS



ICL Logicley has invested more than £500,000 in each of its two computer-controlled plating lines at Plymouth Grove, Manchester, and Kildgrove, Staffs. Shown here is part of the section of the line at Plymouth Grove used to electroplate copper and tin-lead on to the circuit patterns on the outside surfaces of the multi-layer boards. It also plates the sides of the holes that vertically connect the different layers inside a board.

The electroplating is preceded by an electroless plating process which metallises the sides of the holes to a sufficient thickness for electroplating to become operable. The inside layers are made up of copper clad epoxy glass laminates which are bonded together after the circuit pattern has been etched out of each copper layer using a photo-chemical process based on a photographic master of the circuit artwork.

When up to eight different layers of active circuit lines as narrow as six thousandths of an inch are contained in one printed circuit board the holes that vertically connect the layers must be positioned with great accuracy. To achieve this level of precision ICL Logicley uses program-controlled automatic drilling machines from the US firm Excellon of Torrance, California, which was considered to offer the most suitable equipment for the job. The Excellon machine in our picture (right) is one of six at the Plymouth Grove factory which together are capable of drilling several million holes a day.

System X a target market for Logicley

THE Post Office's massive investment in all-digital telephone exchanges for System X could provide a lot of business for the multi-layer printed circuit board manufacturing and marketing operation, ICL Logicley, that was formally launched by ICL last week (CW, June 19).

Logicley personnel have already had talks with the Post Office about the suitability of using its multi-layer boards in System X exchanges in the future. It appears that multi-layer

by Keith Jones

technology satisfies the System X requirements for high reliability and fast repairability.

Logicley points out that its output of multi-layer boards is a lot higher than any of the three telecommunications firms under contract to build System X exchanges: GEC, Plessey, STC.

Telecommunications is one of several markets being targeted by Logicley. Avionics and military electronics in general are two other big potential outlets, and Logicley emphasises that it is also prepared to sell boards to ICL's competitors in the computer business.

But while it claims world leadership in multi-layer fine line PC board technology, Logicley does not appear to be geared up yet on the marketing side to make a killing outside Europe. In the US, Logicley depends on ICL's small force of computer salesmen to make initial contacts with prospects in the electronics industry, and there is no marketing set-up at all in Japan — a market with enormous potential. Logicley recognises the potential of Japan but has made no arrangements yet to sell there.

Indeed, Logicley expects two-thirds of its projected £5 million worth of business outside ICL in 1982 still to come from the UK even though by 1984, according to figures quoted by Logicley itself, the multi-layer board market in Europe alone will have grown to nearly £160 million.

Logicley's plan is to expand production by 20% a year over the next five years, and no more than about 25% of output during that period will go to outside customers. This growth can be achieved with the existing plant and machinery at the two existing and virtually identical fine line multi-layer manufacturing facilities at Plymouth Grove, Manchester, and Kildgrove, Staffs. According to Logicley there are about a dozen other factories around Europe manufacturing multi-layer boards at the moment. They belong to competitors like Marconi, Ferranti, Siemens and CII-Honeywell Bull.

But Logicley is confident that the service it can provide compares favourably with any competitor. The company points out that its highly productive equipment will reduce the time for getting a customer's custom designed board into production from nine months to three months and that the wait can be as little as six weeks using a special quick turnaround facility.

Logicley claims to be the only PC board manufacturer that can produce boards with as many as 22 layers in large volumes while achieving economically high yield rates. The average proportion of boards that have to be totally scrapped in a week is only 24%. About 150 boards with 22 layers are being produced per week at the moment. Each 22 layer board contains eight layers of active circuit lines and is used as a motherboard. It is capable of supporting 50 daughter boards, each with a total of six or eight layers and nearly 150 integrated circuits.



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MICRO NEWS

Apple to use Eire as launch-pad

DURING Computer Weekly's enforced absence, US computer company Apple has made two decisive moves that could make its position in the personal computer market equal to that of Intel in the microelectronics market.

Firstly, it has moved its concentration with Apple II from the education market directly to the business market with the new Apple III.

Secondly, Apple is moving in a big way into Europe, with a plant at Cork, Eire, and a European marketing operation in Zeist, Holland.

Apple III is aimed directly at the \$3-10,000 business computer market which, according to Dataquest, is growing much faster than the home computer market and is expected to reach \$700 million by the end of 1981.

The system can be used in two main configurations, an information analyst and a word processor. Both can be Apple II look-alikes and directly run Apple II software.

For about £2,500 the information analyst package comprises an Apple III incorporating 96K bytes of RAM, a built-in 5 1/4 inch floppy disc drive, which controls up to three additional discs, a 73 key keyboard with a 13 key numeric keypad, two built-in printer interfaces and a 12in black and white video monitor (a colour monitor, or TV set is optional).

The software includes Apple's SOS (sophisticated operating system) which supports Pascal, Basic, Fortran and Pilot (educational language) and tools such as Visicalc III, Mail List Manager and Apple Bus-

ness Basic.

As a word processor, Apple III comes with an external floppy disc drive as well as the built-in one to provide the capacity to store about 60 pages of text per floppy disc and costs about £4,000.

The Silentype thermal printer, or a letter quality daisy-wheel printer can be used. Software includes SOS and word processing applications software, and training is provided.

Like its predecessor, Apple III uses Mos Technology's 6502 processor, but in a later form. The 2MHz 6502A is twice as fast, has additional instructions, and is capable of addressing 128K bytes of memory. A 6-bit D/A converter is also built-in for use in voice and music synthesis. Apple is currently doing R&D in speech synthesis.

Microsense boosts its dealer network

AS PART of a plan to expand the number of Apple dealers in the world, UK distributor Microsense will be boosting its number from 200 to about 300.

But any new dealers must come up to a higher standard of support if they wish to gain Microsense's authority.

Users will be able to obtain the support service by paying an annual charge of £105 for an Apple II system. A similar scheme is envisaged for Apple III users.

For this fee, each dealer will supply a spare parts service for the user and return faulty parts to Microsense for repair.

Apple will be sending an Apple III to each dealer in July and volume deliveries are expected in August in the US and in October in Europe. It is likely that dealerships to office equipment suppliers will be granted and ITT, which produces Apple II under licence as the 2020, will not be given a licence for Apple III.

Mike Brewer, managing director of Microsense, is planning to move sister firm Data Efficiency into an 18,000 sq ft building. The old one at Hamel Hempstead will be used as an Apple III store and for workshops.

1,400 more jobs for Irish

APPLE hopes to make a big impact in Europe and take 30% to 40% of the market. Initial plans are to occupy a 43,000 sq ft manufacturing plant at Cork, and, at the same time, to set up a distribution and support facility in Zeist, Holland. The factory should be running by September, firstly to assemble Apple IIs and then to manufacture both Apple systems and their respective peripherals.

This means 65 new jobs in Eire by winter, with about 1,400 by 1985, when the manufacturing area will have expanded to 380,000 sq ft.

US personal market shares

ACCORDING to a Dataquest survey, Apple has about 24% of the personal computer market in the US. Tandy has about 48% while the Commodore Pet has about 12%.

Although Tandy is top in terms of numbers, Apple claims to be top in terms of value of systems. However, in the UK, this is almost reversed: Commodore claims to be top with about 50% of the UK personal market.

Make your Pet sing
A COMBINED hardware/software package which is said to "make your Pet sing" is being offered by IJJ Design of Marlborough, Wilts. It is manufactured by Micro Technology Unlimited in the US.

Full size screen version of Pet is launched

THE full-sized screen version of the Pet (CW, January 3) was launched at the Hannover Fair in April. It has 18K bytes of firmware and 32K bytes of user RAM, and is designed for both word and data processing.

Two floppy disc drives are available with the system, called CBM 8001. The first is a double-density, single-sided disc with a

Brum helps with IC and device problems

THE electrical and electronic engineering department of Birmingham University is to set up a service for industrial, commercial and government organisations to look at thermal problems in integrated circuitry and specialist discrete devices such as microwave and V MOS power devices.

With a Wolfson Foundation award of £110,000, the department is planning to buy a new set of thermal imaging equipment to attain resolutions of 10 to 15 microns in its temperature and other measurements. Up to now it has been using equipment which can provide resolutions of 30 to 50 microns.

Two members of the research group concerned with this area, Dr P. W. Webb and Prof. G. T. Wright, see a major problem emerging soon in microelectronics fabrication. They define it as the placing of driving devices, such as power circuits which get hot, in close proximity to, but not necessarily on the same chip as, MSI, LSI and VLSI devices.

As the trend for more dense circuitry continues, so arises the need for tight packing of devices with different thermal properties. This in turn creates reliability and temperature resistance problems.

A company that has designed and fabricated a circuit can use the facility to investigate its thermal profile and to detect certain characteristics, such as maximum temperature, over a period in different conditions. A reliability figure can be obtained with the results.

The department has offered a similar service for some time, primarily to investigate the market and the need for the service. Most of the work was done with discrete devices. It now recognises companies that may be interested in the service for GEC, Smiths Industries, Test Instruments and others.

Maintenance service for a rapidly expanding market

INTEGRATED circuit technology is changing so fast that it is almost impossible to define it at any one point in time. In turn, the application areas of LSI and VLSI devices are striving to keep up with the phenomenal pace.

One such area, the microcomputer business, which is totally dependent on the microprocessor, has succeeded in growing at a similar rate to the change in technology. Now the stage has been reached where it is no longer feasible to class the microcomputer as one segment of the computer industry.

It has expanded so much that it can quite easily be split four ways within itself. The story is not complete, however, as gaps have been left in the market, place during the expansion. Various support businesses have not been followed up at the same pace, and consequently the market is grossly under-served. Jim Myson, formerly of Digital Equipment's field service marketing department, has recognised this, and set about trying to correct the situation. With the backing of Mid-



MYSON... the consequence of failure to a small user in terms of business or financial loss could be greater than that for a mainframe user.

tron, the Derbyshire-based terminal and DEC-based microsystem supplier, he has formed a subsidiary called Terminal Systems which is aiming to provide a hardware maintenance service for various types of microcomputers (CW, June 12).

Myson considers it necessary to split the microcomputer segment of the industry into four separate categories, the boundaries of which will continually change to incorporate changes in technology.

These categories comprise a top end, a mid-range, a bottom end and a components sector, which all reflect their own characteristic tendencies in the marketplace.

Starting with manufacturers

Software support for Sinclair

SOFTWARE to support Sinclair's ZX200 personal computer will be available from ACT Telecom in August. At the same time the ZX200 system upgrade will be released. ACT also plans to support the

like Intel, Motorola and Zilog, the components sector creates a series of vertical markets and dedicated applications. The business has to cope with high engineering costs on the hardware side and high software costs.

Moving up market a little into the bottom end, Apple, Pet, Tandy and Superbrain personal computers begin to emerge along with Nascom component boards and kits. Myson recognises that these systems have a restricted level of hardware support, although both Commodore UK and Microsense, the sole UK Apple distributor, are demanding higher standards of customer support from their dealers than ever before.

The personal are low cost, bordering around the £2,500 mark at present, but all are relatively new with, according to Myson, an unproven reliability record. No multi-tasking is possible and each system is only as good as its operator.

On the software side, there are plenty of low cost, poor reliability programs available and these are usually in Basic. Little support is offered by dealers and software houses. Appealing to computer enthusiasts and hobbyists in education and increasingly in small business, personal computers are high volume business.

Systems like Cromemco and Horizon, Myson defines as mid-range. They cost between £1,500 and £7,500, have a better physical construction than the personal computer's, possess multi-user facilities and can be used with larger discs. They are also available with reasonable hardware support.

Software for the mid-range systems comes in a variety of languages such as Cobol, Basic, Pascal and Fortran, but again minimal support is offered.

A fair range of packages are available to the user. The sales area exists for vertical markets, dedicated applications and commercial systems, and is primarily, a low volume business.

Included in the top end of the market are the Hewlett-Packard range of microcomputers, the DEC LSI-11 and Data General's Microvna, which cost between £3,000 and £15,000. These systems have full multi-tasking facilities and, unlike the other three categories, can be upgraded.

Software is proven and comes in complete ranges of program languages with communication software available. Both hardware and software are fully supported. Myson recognises this category as "addressing" a general, high volume sales area.

With the microcomputer marketplace so defined it is easier to decide what sort of

maintenance service is required and where.

At the component level of the market, service needs for hardware and software can only be supported by the manufacturing or supplying company. For example, if a program error is detected when running a program from ROM, the user has but one option — to return the ROM chip.

Myson stresses that the picture is very different with regard to the high volume business of personal computers at the bottom end of the market, which is certainly inadequately supported. He has developed a three-tier service to satisfy low, medium and high customer expectations.

High customer expectation calls for a speedy on-site service,

where the engineer can arrive at the scene, detect and correct a fault within a few hours. This type of service is charged at a percentage of the system value per annum, which can be anywhere between 5% and 30%. However, this is not really a cost-effective solution for personal computer users and Myson advises that a spare system would make more economic sense.

For a medium level of customer expectation a one and two day response is required. Lower still, the systems can be taken to a maintenance depot for repair and then returned. Myson will be concentrating on this type of service for personal computer users.

Mid-range systems, being a low volume business, are usually serviced by dedicated support

Many applications areas are being created by the growth in technology, but not all their support markets have been pursued. This is particularly the case in the personal computer business where the market for maintenance is grossly under-served.

Micro News Editor Eileen Stainer talked to former DEC field service manager Jim Myson who has recently been made managing director of Terminal System Services, set up to provide hardware maintenance for various types of microcomputers.

Myson explains his philosophy, how he hopes to run TSS, and the support he will be getting from its parent, Mideltron, which is based at Belper, Derbyshire.

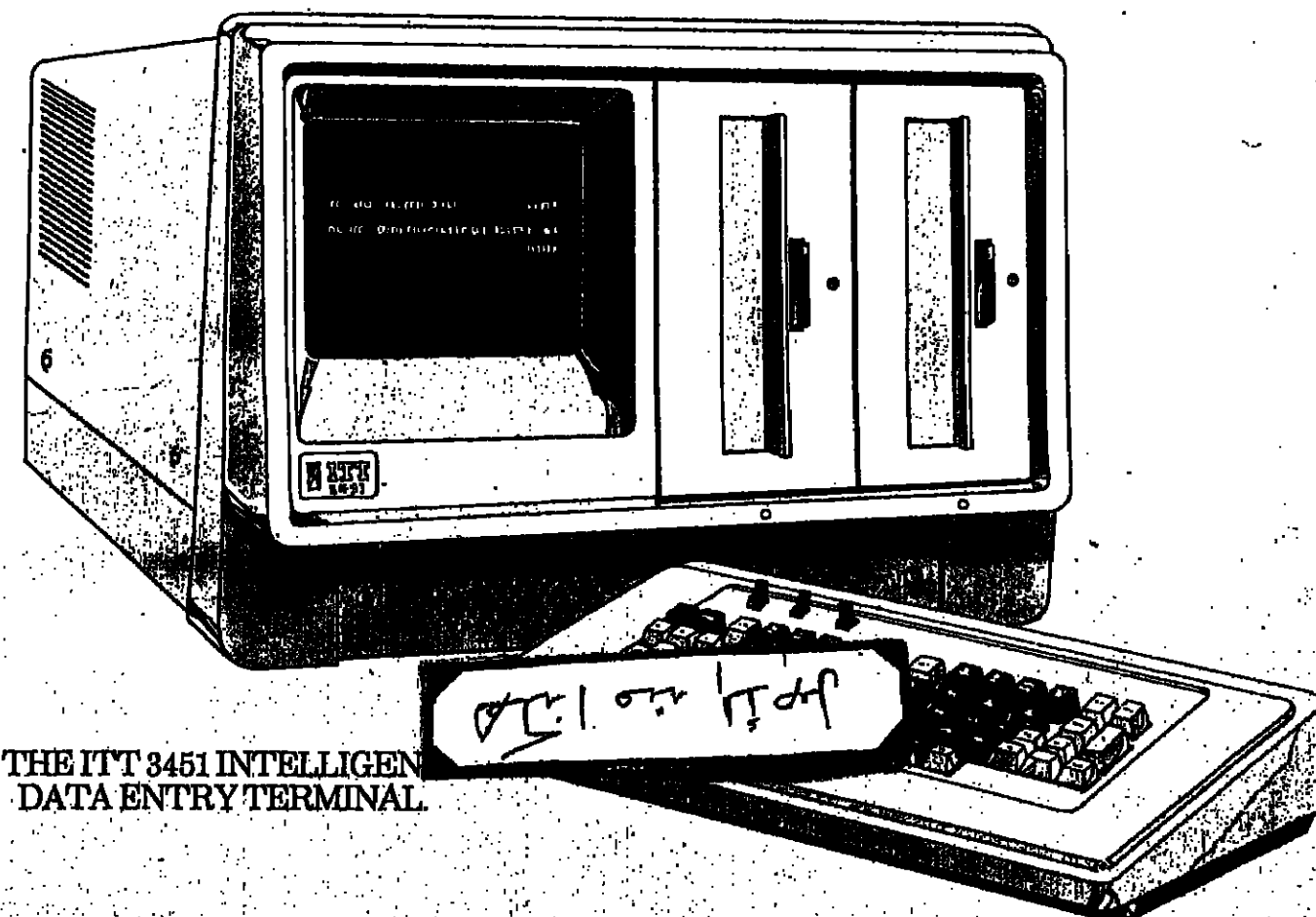
organisations and, according to Myson, require no further support.

At the top end of the market, an area already well supported, exists high volume business, which calls for the three tier service. Terminal Systems Services is offering a four hour or less service response time for high volume quantities, including Mideltron's distribution of DEC-based systems, and range of terminals for this area.

So Myson opted for TSS to support the top and bottom ends of the market with the three tier system. For £25 plus parts and VAT the user can obtain the "return to workshop" facility offered by TSS for each unit that

goes wrong. Myson is planning to set up a network of service bases throughout the UK to control this.

For 15% of the system value at the high end the user can obtain the on-site service, which will be backed up by an already established Mideltron transport system that covers the UK. Myson's policy originates from the fact that to a small system user the consequence of hardware failure in terms of business or financial loss could be greater than that of a mainframe failure to a large industry. It necessitates the microcomputer purchaser realising service needs before choosing a product type.



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It is an appraisal of likely future developments in large scale computing, communications and office automation. This will deal with forecasts of the probable characteristics and price structure of the IBM new range, including Series 'H'.

The conference brings together experts in both technology and financial analysis. It presents a unique opportunity to delegates for the exchange of information and views with some of the foremost authorities in this field.

Future Systems Forum in Phoenix received exceptional coverage in the computer press as the selection of quotations below indicate:

"IBM will eventually evolve into a gigantic service bureau" (Charles Licht in the keynote address at Future Systems Forum) Computerworld

"At Future Systems Forum in Scottsdale, Fertig unveiled the most detailed projections yet" Electronics

"Well, contended the way to do it is to raise prices especially basic and what-if I gave you they'd do it again and again" Electronics News

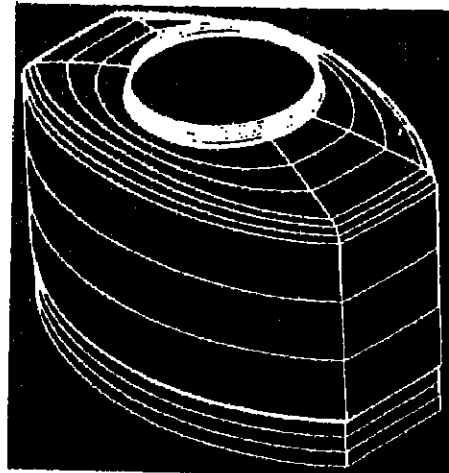
"A major IBM competitor noted that 'Bob Fertig is either very right or very wrong, and he is more often right'" Electronics

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Centre dedicated to spread of knowledge

WHETHER as a result of lack of investment capital or simply ingrained conservatism, British companies have been slow to adopt computer-aided methods. The CAD Centre in Cambridge was established in 1969 to accelerate the process by assisting companies in all aspects of the move to CAD/CAM.

The Centre is a government body staffed almost entirely by employees of ICL, Datsun, and its services range from the design of large systems for chemical process control through to the production of numerical control tapes and actual components. But it is not a software bureau in the conventional sense and does not get involved with the minute detail of applications design.

"The Centre's original aim was to develop the market for computer-aided design and manufacture in engineering," said Mike Evans, manager of the manufacturing industries group. "This market is now very lively, and we are concentrating on helping companies make use of CAD/CAM in the most efficient and cost-effective way. Our part is played at system level, to help the customer integrate CAD with whatever DP systems he may have, and not, as a rule, to design components, for instance."

Basically, the Centre is concerned with the spread of knowledge. Nothing must be wasted; no job can be a one-off job. Knowledge acquired on a project must, if possible, be encapsulated in a re-usable form and made available to as many users as need it. This requirement has given rise to the design philosophy of "program building blocks": products designed to be used together or separately, and to form together a complete library of CAD/CAM aids. Both hardware and software "blocks" are designed to be completely machine-independent.

"Technology transfer" is a favourite phrase among the management of the Centre: experience gained in one field can often be used in another. Design projects are undertaken in collaboration with customer companies, with a two-way exchange of knowledge; the "building blocks" are marketed through agents, so as to reach as wide a public as possible; and the Centre runs a jobbing shop producing metal components and printed circuit boards, with the aim of giving small companies experience of computerised numerical control and other methods before taking the plunge into CAD themselves.

The Centre can be seen in a number of ways. From a point of view, it is financially a high-risk project, and the results of the research to benefit other companies," said Evans. "These principles are realised in the Gino suite, a series of graphics packages where modularity is carried down through various levels. The basic package is Gino-F, a set of modules which enables the programmer to build only those he needs. Gino-D is a speedy version for use in two dimensions only, and where modularity can be bought in a number of ways. Gino-E is a more powerful version, and Gino-G is a more powerful version, and Gino-H is a more powerful version. All are available for purchase or hire."

tran and designed to be used in a mixed language environment, on any machine.

The Centre is divided into four sections: manufacturing industry, process industries, research and development, and production services. "It is structured and run like a small company," said Mike Evans. "We are organised like the people we are trying to help, not just as a research shop." It is headed by the Director, Paul Fleet, "effectively our managing director," and a board of four controllers responsible for finance, sales and marketing, production and development, and research.

The manufacturing industries group is divided into several specialist areas in the field of development: computer-aided planning, integrated engineering information systems, numerical control and draughting systems. Its aim is to extend the technology in these areas and to provide an interface to CAD systems which can be tailored to the requirements of specific companies.

One of the group's principal products is GNC, Graphical Numerical Control, a package which provides a good example of the way in which CAD can speed up a manufacturing process. GNC helps produce input tapes for numerical control machines, thereby saving materials, man-hours and production time.

NC machines, widely used in industry for the last 15 years, are computerised lathes, drills, flame-cutters, etc, which pro-

The Centre is concerned with the spread of knowledge. Nothing must be wasted; no job can be a one-off job.

duce components from paper tapes known as part programs. Part programming is now the most labour-intensive stage in the process of manufacturing (finishing the part exactly, ensuring the steps to be followed by the NC machine, hand-punching the tape and using it actually to produce a part. The rest part will show up not only the programmer's errors of judgment and calculation, but his typing errors as well. The process is time wasting, interrupting man-hours, and slowing machine down time. If programs cannot be written fast enough to supply the NC machine," said Evans.

With GNC, almost the whole process is computer controlled. Input is the part definition which is composed using simple geometry definitions; the part can then be displayed on the VDU and various machine movements tried out interactively, using the control to position the cutting tool. The process is economical and the speed of metal cutting is high. The GNC package is available for purchase or hire. It is independent with regard to

computer and NC machine.

The process industries group is working towards the production of a library of integrated packages for the design, construction, and operation of chemical process plants.

Its Tanks package for the design of circular low-pressure storage tanks was developed jointly by the Centre and Capper-Neill International. Sections of Tanks have now been adapted by W. W. Wild (Engineers) of Mansfield, once again justifying the Centre's policy of designing for a wider applicability than the use of just one customer.

The process industries group

has specialist teams working on process design, physical properties data, vessel engineering, project engineering and pipe-work engineering. Its packages include Concept, a comprehensive system for process design and simulation for chemical and associate industries; an allied product, Multicol, for the design and simulation of distillation columns and interlink towers; Stem, for heat exchanger design and draughting; and PDMS, for plant and piping layout. The latter was developed in conjunction with Akzo Engineering and Isoplex.

"The group exists to aid the designer in this field, not to replace him," said Mike Evans. "There is a shortage of skilled labour in this market, and CAD techniques can supplement the available supply of workers."

The production services group offers small businesses a way of taking advantage of CAD techniques without investing in prohibitively expensive equipment. It offers part programming on a jobbing-shop basis using GNC and supplies fabrication drawings, NC tapes and printed circuit board artwork.

Pye Telecommunications has used the service to produce over 1,000 printed circuit boards. The production services group uses GNC to provide a part program-

ming service, and has produced such items as turbine blades and ships' propellers for various customers, using the Centre's three-dimensional machining system.

The service also enables companies to try out CAD methods before taking the irreversible and costly step of switching from their existing systems.

The research and development group exists to develop components which can be used in engineering applications. The Gino suite was produced by this group; and the Centre is currently marketing three pieces of

hardware it originally developed for internal use.

The largest of these, a colour raster scan display unit, goes by the misleading name of Bugstore, though its official title is AGDT, Advanced Graphics Display Terminal. It computes pictures with true perspective and shading, with hidden surfaces removed, and can handle large models, for example large urban developments. Sequences of pictures can be filmed, simulating a tour through an area. Photographs of real scenes can be reproduced and scanned, and mixed with computer-generated images.

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The colour map can be changed interactively, making the device useful in applications for designing such products as carpets and wallpapers.

Bugstore has been implemented on the Prime 300 and 400 and the PDP-11/34 and 70, and the Centre is prepared to implement it on any other machine. Several have already been sold, and more are under construction.

Other hardware products are the Remote Data Switching

Unit, which allows any two terminals such as a storage tube device, printer or plotter to use the same modem connection to the computer, and the Remote Peripheral Controller, a micro-based unit which permits the connection of such peripherals as incremental plotters and paper tape readers and punches to computers which normally do not provide these options.

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Examples of components made using the Centre's Polysurf and GNC packages.

From page 18

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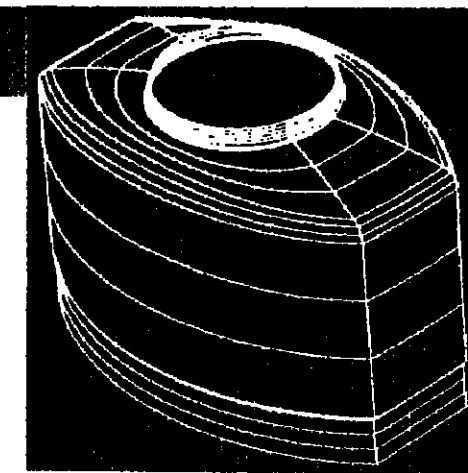
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Plans for expanding use of micros in engineering system



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ADVANCED FILE DESIGN — Part 11

by Owen Hanson and Norman Revell

STRUCTURES FOR DATABASES

IN Part 10 we saw how the choice of a logical data model and database management system (DBMS) determined the choice of file organisation. In general, the closer the physical storage organisation can mirror the logical data structure and processing then the better the performance of the database. In this part we shall explore the physical database organisation further by studying examples of some actual DBMS.

Inverted files for database systems

The concept of an inverted file was discussed in Basic File Design. If a file is fully inverted then it is possible to access that file using any of its data fields as a secondary key. Diagram 1 shows the simple motor car database both before and after inversion.

In practice if DASD are being used then access to the file could be provided via secondary indices as shown in Diagram 2. Also it may not be necessary to access the file via every one of its data fields, so indices are only constructed for those fields by which it is necessary to reference the file. This is known as partial inversion.

An inverted file, or set of linked files can thus form the basis of a DBMS, permitting access to the database via any specified key. However, from a performance point of view there are three major drawbacks. Firstly that all relevant indices would need updating whenever a record is added to the file; secondly, that efficient batch processing is only possible in the sequence of the original file(s); and finally that at least two references are required for each record, one to the index and one to the file itself.

However, for query-type database systems this structure can work effectively and forms the basis of several DBMSs such as Adabas and System 2000. A simple example of such a DBMS is the Cromemco DBMS package designed to run on the Cromemco range of microcomputers.

This is a single user single file database system. Records are added serially to the database, and indices are maintained for designated datafields (known as sort-fields).

These indices are maintained in sequence, as in Diagram 2, so

that every addition to the database causes indices to be re-sequenced.

The overheads caused by this constant updating of index files are quite acceptable in the personal computing environment for which this DBMS is designed, but would be less acceptable for larger scale use.

This type of structure, often in indexed sequential form with secondary key indices forms the basis for some of the smaller scale microcomputer DBMSs as well as the mainframe DBMSs previously mentioned. It is possible to support a network data model by providing links between the indices of different files.

An IMS database

As mentioned in Part 10, IBM's Information Management System (IMS) is based on a hierarchical data model and offers users a choice of physical file organisation to suit their processing needs. The IMS packages consist of both a data communications system and a database system, though it is only the latter that concerns us here.

The building blocks of an IMS database are known as segments. Each segment may comprise one or more datafields, the highest level being known as the root segment.

In the simple example we have chosen, the root segment would be the car-model and the engine segment would be a child segment of the root segment (also a parent segment) in the parent-child structure outlined in Part 10.

There are four physical file organisation methods possible for an IMS database:

- HSAM, Hierarchical Sequential Access Method.
- HISAM, Hierarchical Indexed Sequential Access Method.
- HDAM, Hierarchical Direct Access Method.

HISAM stores the root segment and as many lower level segments as possible (remaining segments being held in overflow) as ISAM records, thus it is possible to access a given root segment at random via its key and thence gain access to the lower level segments.

HDAM stores all the segments separately as a chained direct file, with pointers between levels in the hierarchy and between segments at the same level. Diagram 3 illustrates how the car example might appear using HDAM. There is no significance in the physical position of segments, since they are connected via pointers, though to minimise seek times it is advantageous to place segments which are normally accessed together physically close to each other. The root segment is accessed via a randomising algorithm.

HISAM is similar to HDAM but uses an ISAM file as an index to the root segment and thence to lower level segments by chaining.

Both HDAM and HISAM may take more storage space since each segment has its associated pointers stored with it. However, the ability to access individual segments makes them suitable for online use where rapid response to transactions is required.

HISAM and HSAM are more suitable for an environment where there are more batch-type applications and few, if any, query-type transactions.

It is interesting to note that in the early versions of IMS, IBM was aware of the shortcomings of ISAM and used a special access method (OSAM) to handle overflow and also to form a basis for the segment chaining used in HDAM and HISAM. IMS/VS now uses VSAM referred to in earlier parts as a basis for HISAM, HDAM and HISAM.

From a file design point of view IMS illustrates well the two stages of performance optimisation needed for a database environment: once a DBMS has been chosen, then are:

1. Selection of appropriate physical file organisations from those supported by the DBMS. If there is a choice.
2. Optimisation of individual files by those techniques available for single files, as dealt with in previous parts in this series.

Space does not permit us here to study in detail a network relational database system. In the case of the former, because of the more complex data model there may be an even greater overhead associated with chaining than with IMS, though this will now support more

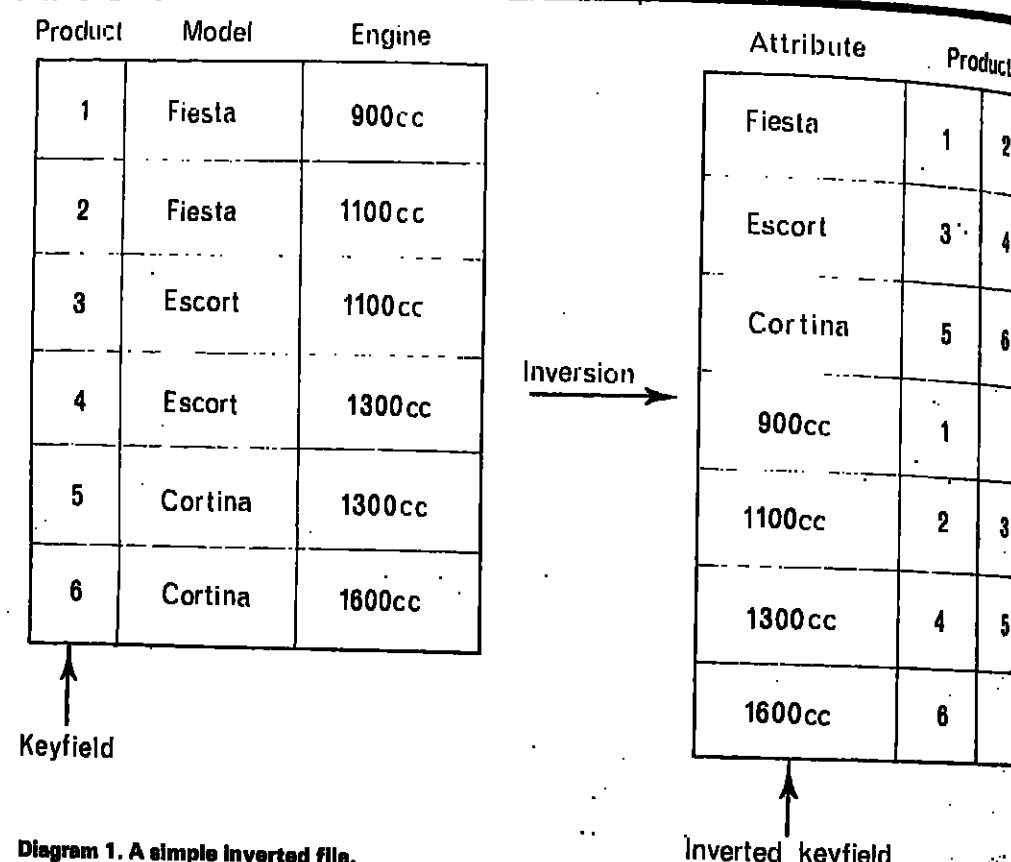


Diagram 1. A simple inverted file.

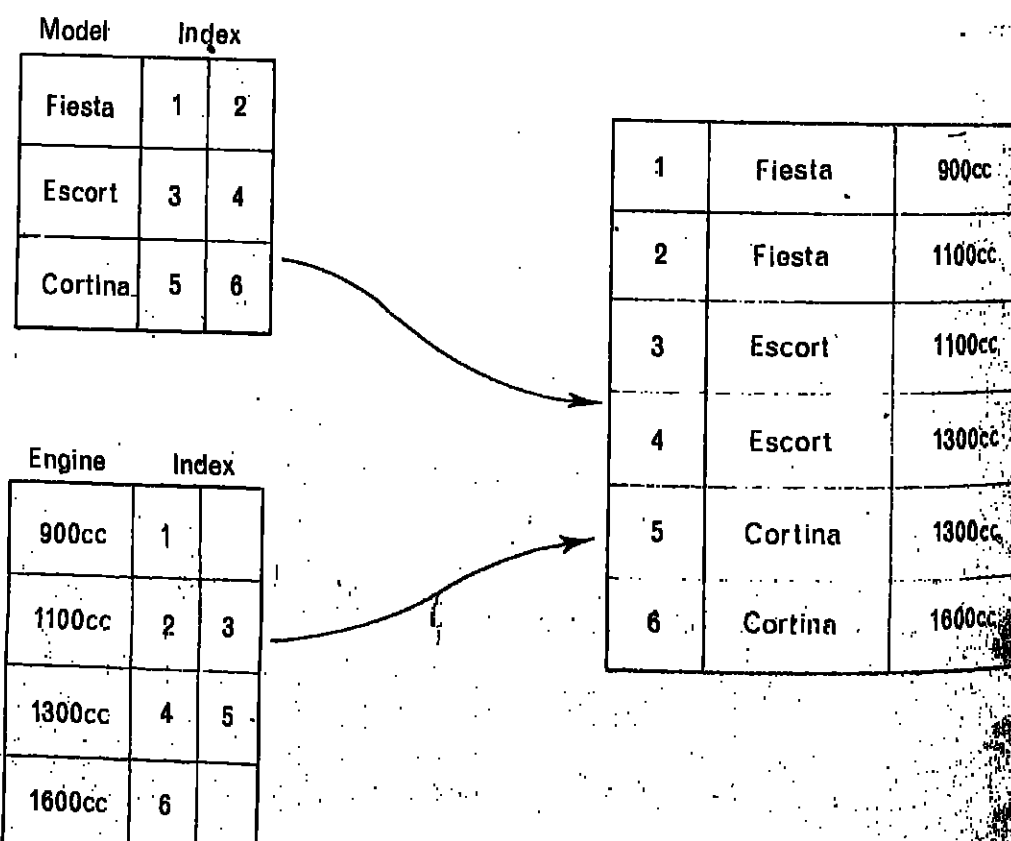


Diagram 2. Use of indices for inversion.

complex structures than simple hierarchies through use of the logical parent and logical twin concepts.

Of particular interest to the reader interested in further study might be the IDMS package which uses the Codasy data model and is available on a wide range of computers, including ICL's 2900 series, in which the physical database is constructed using a page concept.

In the case of the relational data model, no DBMS is yet in use on a wide scale which is suitable for large scale commercial applications — a major problem, though it is possible that new storage technologies will facilitate the development of efficient relational DBMSs and that IBM's long-hailed System "R" will be launched.

REFERENCE
1. IMS General Information Manual G120-0795, IBM.

BASIC FILE DESIGN
A new expression of Basic File Design is now available and can be ordered from the General Sales Manager, IPC Electrical and Electronic Sales Ltd, Dorset House, Strand, London WC2R 0LU. Price £1.95 post including postage.

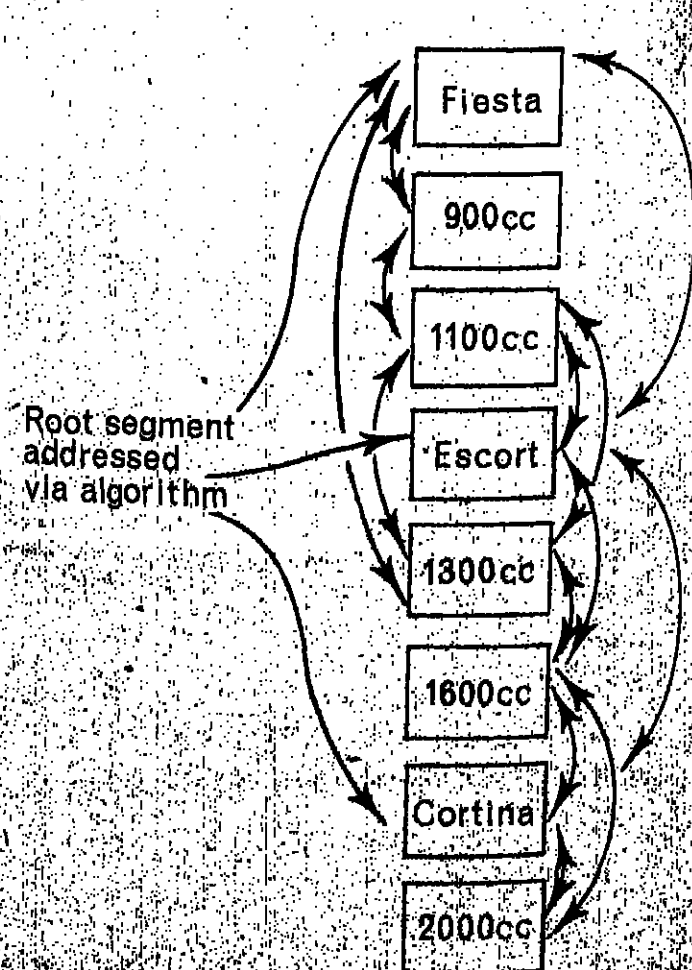


Diagram 3. HDAM database.

Foreign exchange system links into Swift

MERCHANT bank Morgan Grenfell has developed a real time foreign exchange system on its ICL 2960 miniframes which communicates with the Swift Interbank funds transfer network in a similar way to the Direct Swift Link on IBM

mainframes. As a result, the ICL 1500 Swift Interface Device proved unsuitable to link to the network, and a General Automation 16-460 minicomputer was chosen instead.

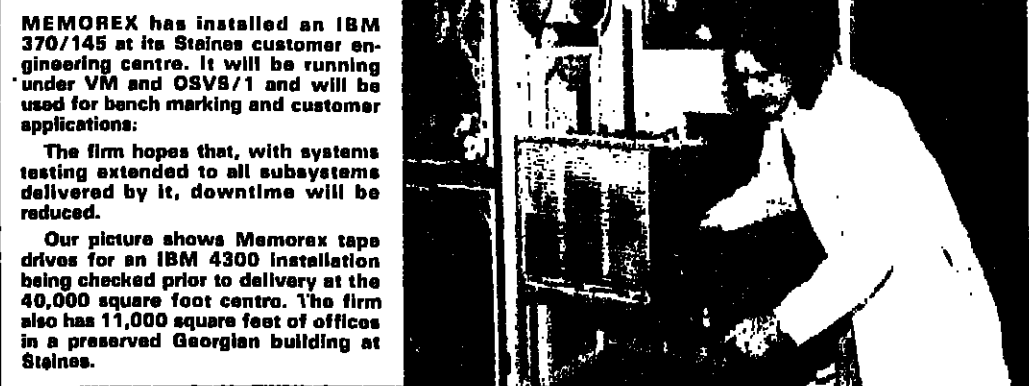
"The mainframe system pulls the terminals, but a 1500 with a

key-station is itself a polling device, and this can cause contention. We found that a software solution to resolve this would be more expensive than the GA solution," Morgan Grenfell DP manager A. R. Gibson told Computer Weekly.

The 2960s will use ICL's XBM protocol to link to the GA 16-460, and thence via a GA SID to the Swift network. The 16-460 can take over the role of the SID in the event of failure, and will also be used as a message switch.

One 2960 is currently running the live system under DME while the other is running VME/B for development. The first live batch VME system is due in mid-summer, and the full live TP system is set for early 1981, when the 2960s will be run as a dual four-megabyte system under VME/B.

ICL chairman Philip Chappell is vice-chairman of Morgan Grenfell Holdings, but Mr Gibson told Computer Weekly that relationships with ICL were strictly at arm's length. "We do not use the connection to get better treatment from ICL and we are under no unusual pressure to buy from ICL," he said.



MEMOREX has installed an IBM 370/145 at its Steeles customer engineering centre. It will be running under VM and OSVS/1 and will be used for bench marking and customer applications.

The firm hopes that, with systems testing extended to all subsystems delivered by it, downtime will be reduced.

Our picture shows Memorex tape drives for an IBM 4300 installation being checked prior to delivery at the 40,000 square foot centre. The firm also has 11,000 square feet of offices in a preserved Georgian building at Steeles.

IBM aids for PSS packet network

TWO products have been released by IBM in the UK to aid user attachment to British Telecom's PSS packet network.

They have been in service for two years in Canada for use with the Datapac, which was the first national packet network to use

the X25 protocol, and have also already been announced in France, West Germany and Holland.

One of the products is an extension to the SNA software which runs in IBM 3705 communications controllers and the

Call for papers

A CALL for papers has been announced for the fifth annual microprocessor workshop on microprocessor applications to be held on September 1 and 2 at Liverpool University's Computer Laboratory.

Our new VDU is so good that our sales force aren't going to sell it.

The advantages of our new 3101 VDU (both in features and in price) are so

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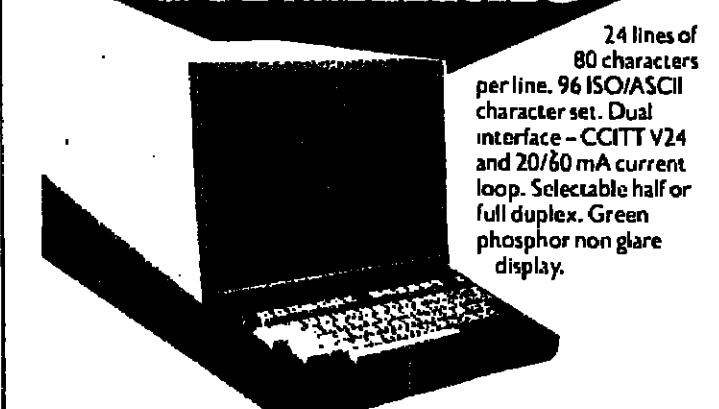
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It embodies proven IBM technology, provides excellent user comfort and is very easy to operate.

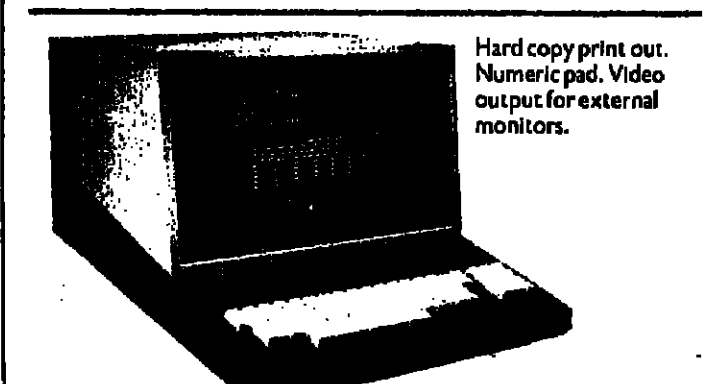
Also announced is the 3102, a quiet, non-impact thermal printer.

If you would like to see the 3101, call us or visit us. And we'll tell you all about the VDU that sells itself. Or send the coupon for more information.

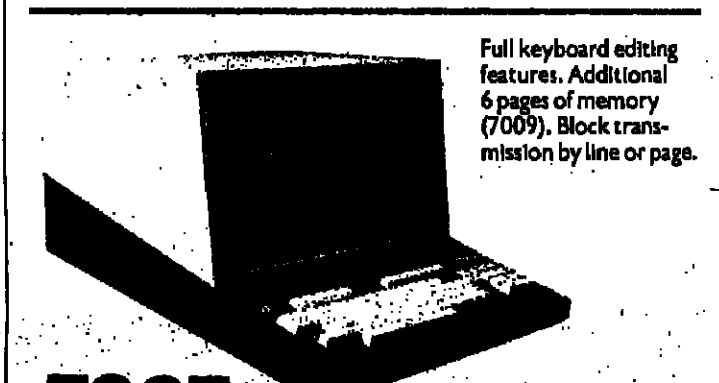
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Application forms and job descriptions are available from the General Manager's Department, Harlow District Council, 17 Avenue House, The Village, Harlow, Essex CM20 1BD. Telephone: Harlow 28822 ext. 40. Closing date: 15.7.80.

HARLOW

ANALYSTS/PROGRAMMERS/ CONSULTANTS

PIM/UNICOM are two small consultancy companies working together in diverse problem areas such as micro computer based turnkey applications systems, commercial (COBOL/ FORTRAN) systems, forecasting, linear programming, etc. They are currently involved in projects in Belgium, Italy and Ireland, as well as in the U.K.

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The Boots Company has a very wide variety of General Accounting Systems. The maintenance and development of these systems are vital to the continued success of the company. We are currently seeking an analyst programmer with a minimum of 3 years experience which should include the use of COBOL on IBM equipment for commercial applications. A knowledge of PL1 would also be useful. Applicants must be prepared to take complete responsibility for at least one major system, be good communicators, and capable of working on their own initiative.

PROGRAMMER - TO £6K PLUS BONUS

We are also seeking a Programmer to join the General Accounting team. A minimum of 18 months commercial experience is required. Ideally using COBOL on IBM equipment. The successful applicant will have the opportunity to work on his/her own initiative on a number of projects, and there will be contact with the User Department at an early stage.

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PROGRAMMER TOWARDS £6,000 BROADWAY WORCESTERSHIRE

Our Client, Group 4 Total Security, requires an experienced programmer preferably with RPG II in a commercial environment. However, applications are invited from programmers with any Mainframe language as full training on RPG II will be provided.

Currently using a Univac 90/30 256K, with both Batch and On Line Systems, there are plans for major enhancements on Hardware, Systems and Programming Techniques.

Group 4, with an enviable growth record, is part of the largest security company in Europe. Career Prospects and Fringe Benefits (including Relocation Expenses, a Private Family Medical Scheme and Free Lunches) will be those expected from a major employer.

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- Senior Systems Analyst** £9,000
East London based, commercial systems designing and implementing new systems. ICL background useful.
- Systems Analyst** £9,000
London-based, 3 years' systems design experience required. IBM Database systems
- Systems Designers** To £12,000
Manchester firm, to help design on integrated database on-line system.
- Systems Analyst** £10,000 + Mortgage
City-based International Bank, require analysts to work on new development projects. CW 54/

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- Senior Programmer** £8,000 + Bonus
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- PL/1 Programmers** £8,500
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South London-based firm required minimum 2 years' experience of OS Assembler for T.P. Systems.
- DOS/VS Cobol** £7,500
South Coast-based firm seeks Cobol Programmers at all levels for development of future IBM 4341. CW51/

IBM Systems Programmers

- DOS/VM Systems Programmer** £9,500 +
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- MVS Systems Programmers** £12,000
London based consultancy requires experienced Systems Programmers for U.K. and overseas assignments.
- HAMPSHIRE - Systems Programmer** £10,000 +
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- PDP11/34 Programmers** £8,000
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- BASIC Plus** £8,500
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- Senior Programmers** To £9,000
Hertfordshire based client requires DEC experience people for Database systems.
- Programmers** To £10,000
Hampshire based firm requires PDP11, MACRO11, and RSX11 experience, pref. degree background.
- Senior R.T. Programmers** To £13,000
London firm require experienced candidates with minimum 5 years' in minis including PDP 11s.
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- BASIC + COBOL** £7,500
Berkshire based company require 3 years' experience of DEC based commercial and financial systems.
- MUMPS** £ Neg.
Berkshire based firm with 11/34 require MUMPS experience for a variety of applications systems. CW57/

Scientific Programmers

- Real-Time Programmers** To £12,000
Hampshire-based consultancy require people for Defence and Military Systems. CORAL experience necessary.
- Fortran Programmers** To £12,000
West London firm requires experience of numerical Control.
- Real-Time Designers** To £10,000
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- Programmers/Designers** To £11,000
North London-based firm require Telecomm people with high-level languages for telemetry systems.
- Systems Engineers** To £10,000
Staffordshire-based, minimum 4 years' experience of mini/micro-based systems for military projects.
- Analyst Programmers** £ Neg.
South Coast-based, experience in R.T., comms, compilers and operating systems for advanced comms projects.
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London-based, FORTRAN experience to provide programming support for packages.
- Coral 66** £10,000
London-based consultancy require Real-Time Programmers for micro-based communications and signal processing systems. CW52/

Irish Assignments

- Co MAYO based manufacturing company require RPGII Programmers.** £7,000 +
- DUBLIN** South company seeks Systems/Analyst with commercial background. £9,500
- CORK** based Co. requires D.P. Manager for IBM 380 with manufacturing experience. £10,000 +
- LIMERICK** Electronics firm requires Programmer/Analyst with RPGII exp. £8,500
- DUBLIN** Software House seeks Programmers with DEC experience. To £8,000
- SLIGO** based company requires RPGII Programmers/Analysts. £7,500 +
- DUBLIN** based Electronics Company requires Systems/Analysts with COBOL and manufacturing experience. £10,000

Please apply to Gerald Delaney at CDO at Carillon House, 24 Lower Leeson Street, Dublin 2, T.M. Dublin 1885777 CW57/

Overseas Assignments

- GERMANY** DM 60,000 +
German speaking candidates with experience of mini software or micro systems.
- HOLLAND** £ Neg.
Systems programmers with PDP experience for Real Time Telephony systems.
- GERMANY** DM 60,000 +
IBM DOS/VS Systems Programmers for Hamburg and Munich.
- FRANCE** Fr 160,000
IBM Systems Programmers with big machine experience MVS, VM for large IBM Network.
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- SWITZERLAND** SFR 65,000
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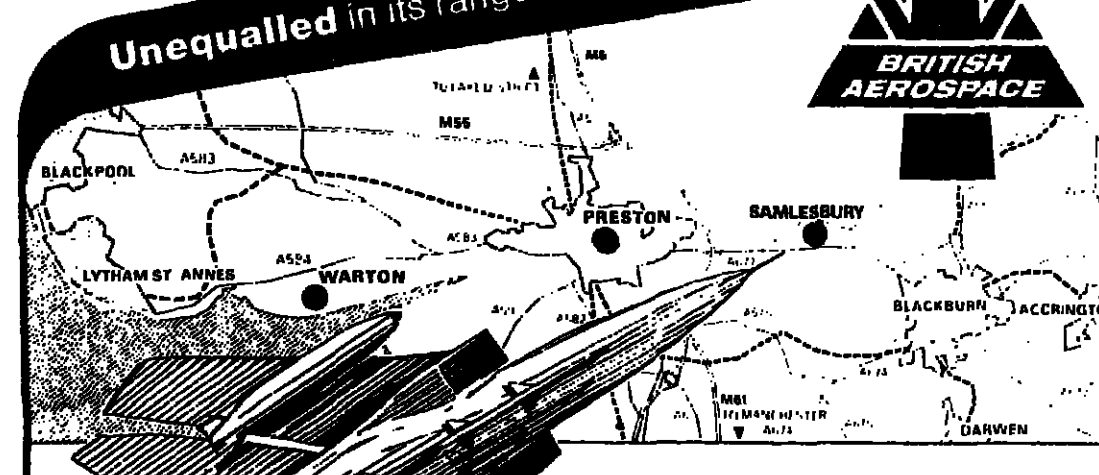
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to control the activities of a group of programmers working on a variety of Spares Supply Systems. The successful candidate must be capable of contributing to the development of effective systems designs and will be responsible for the maintenance of appropriate standards. Applicants should be qualified to HND/Degree level and have at least 7 years' programming experience, some of which must have been in an IBM 370 environment. Good working knowledge of COBOL is essential, and knowledge of CICS/DLI would be an advantage.

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For an application form, please telephone or send the coupon below to:

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Tel: Mellor 2371 Ext. 327

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UNIVERSITY OF SURREY

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EUROPEAN MOLECULAR BIOLOGY LABORATORY

EMBL invites applications for a vacancy at its Heidelberg laboratory as

HEAD OF COMPUTING

The successful applicant will have overall responsibility for the organisation and coordination of operation, user support and new applications of a multi-user computer facility, specialised for laboratory data acquisition, image processing, interactive graphics and scientific data processing. The present configuration comprising 4 Nord 10 minicomputers will be expanded by a medium-size machine in the future. The salary offered will be not less than DM 4200 monthly after tax, plus certain allowances. An initial contract of 3 years will be offered.

Applicants with a university degree in computer science or a related discipline, together with several years of relevant experience, should write, quoting reference 90/1 A 10.

Sir John Keldrew, Director General, EMBL, Postfach 10 2209, D-6900 Heidelberg, Germany

Recruitment



In Informatics

Network Project Leaders

Greater London: Salary to £12K

A well-known European Systems Supplier and Consultancy with a recently established U.K. subsidiary is seeking several Project Leaders with extensive experience of data communications and networks in a banking or other financially orientated environment. Successful candidates will preferably be graduates and aged 27-34 years. You should have a minimum of five years' programming and/or financial applications consultancy experience, gained in either a commercial,

merchant banking, stockbroking or investment orientated environment. Our clients would prefer those who have current experience in an installation having extensive mainframe and minicomputer capabilities in an on-line mode. Multi-tasking and fail-safe computing techniques are particularly valued skills and will reflect in the salary offered.

Ref: L/20/A

IBM & Amdahl Systems Engineers

Germany & Switzerland: Salary £22K

We have rare opportunities for Senior Systems Engineers and Project Managers for permanent career positions in Rhineland Germany, Bavaria and Switzerland. Technically, you must demonstrate continuous exposure to the implementation or support of Data-Base and Teleprocessing systems. It is a pre-requisite to offer "hands-on" Software

experience with IMS/DB-DC; CICS/VS, MVS or with the D.B. or T.P. Software of an independent supplier. The Company offers higher than average salaries (even by Continental standards) plus a range of extensive and practical benefits. Interviews can be arranged to suit individual requirements.

Ref: L/20/B

Communications

Programmers + Engineers

W. Country: Salary to £11K

One of Europe's renowned communications companies, with a well-established and expanding MicroProducts Group, is currently seeking dedicated real-time professionals for its software "workshop". The Company is based in an area of outstanding natural beauty which can offer reasonably priced housing to those wishing to relocate. Currently, you should be employed as a Software or Development Programmer/Engineer and have 2-3 years' minicomputer or microprocessor Assembler experience. It is a distinct advantage to offer a numerate degree

combined with extensive knowledge of at least one high level Programming language. Involvement with Intel 8085/8 or Zilog Z-80 micro-processors will be particularly advantageous but candidates with a background in real-time military or defence applications are equally encouraged to apply. These exceptional positions require liaison with both internal and external customers and well-developed personal communications skills are, therefore, essential. Interviews can be arranged locally or in London.

Ref: L/20/C

Project Leader - Telecomms

Paris: Salary to £18K + benefits

Due to the planned expansion of its distributed processing network, a "blue chip" multinational requires a French-speaking Project Leader for its Paris-based installation. Candidates will be required to have at least 5 years' communications software experience and demonstrate the ability to lead a Project Team engaged in the development of non-homogeneous networks. The configuration

consists of Honeywell-Bull mains on-line to an IBM mainframe. As well as having responsibility for the design and development of a full communications system, the successful applicant will have the additional opportunity to assist in the evaluation and selection of new computing facilities.

Ref: L/20/D

Software Instructors

Berks/Bucks: Salary to £10K

A leading manufacturer of mini-computers is seeking several Software Trainers for its U.K. Regional Headquarters. Work content will include the staff training of both existing and prospective customers in general d.p. techniques and the individual requirements and capabilities of the company's software. Education currently takes the form of product demonstrations, seminars, workshops and, of course, inevitable "on-the-job" learning. The development of software courses in

areas not so far covered by the company will form an essential and integral part of the position. The company has a stated preference for candidates who can combine previous FORTRAN and/or ASSEMBLER programming in a practical environment with past or current experience as a Software Lecturer or Trainer in an academic or manufacturing environment.

Ref: L/20/E

Scientific Programmers

West Germany: Salary to £18K

A Scandinavian Systems Supplier is further expanding its team numbers in the areas of Image Processing, Operational Research, Modelling and Graphics. It is an essential requirement for these vacancies that all Applicants Programme offer both in-depth FORTRAN and ASSEMBLER programming experience in a mini-computer

environment. Systems Programmers who can offer experience in the development and implementation of complex and operating systems are also encouraged to apply. There will be future opportunities to work for the Company in other Continental European locations.

Ref: L/20/F

17703

Logistix, 10 Grenville Place London SW7 4RW

01-373 3063



Telex: 28800

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MANAGEMENT & EXECUTIVE SELECTION

telephone 01-637 9611

European General Manager

London based

American mini computer manufacturer

Remuneration will be in the form of an extremely attractive basic salary + 1% over-ride on total European sale with no upper limit + executive car and the usual company fringe benefits.

Contact Tony McGrath on 01-637 9611

We have been retained to identify and select a European general manager by our client who is one of the most exciting computer manufacturers to emerge within recent years.

Having successfully established their operations in the USA they have now decided to release their outstanding products to distributors in Western Europe.

Candidates will be responsible for the formulation and implementation of a European business strategy that will include the selection and development of a dealer network.

MANAGEMENT & EXECUTIVE SELECTION

(1733)

Suite 201/6 Albany House 324 Regent Street London W1R 5AA 01-637 9611

Cambridge Analyst/Programmer

circa £6k plus car

A Cambridge Systems House, rapidly establishing itself as a leader in computer technology, is about to embark on an ambitious development project. They employ the latest hardware and sophisticated DB/DC techniques for which a comprehensive training programme will be provided.

This has created a requirement for an additional Analyst/Programmer. The ideal candidate will be a graduate to degree standard and have a minimum of two years' programming experience using DB/DC.

It is envisaged that the successful applicant will be given the opportunity of developing a management role within the company in the future.

The position offers a competitive salary and benefits package, a car, and a company pension scheme.

For further details and an application form, please write to: Mr. J. H. Smith, Cambridge Systems House, 100, The Quadrant, Cambridge CB2 1RQ.

Computer People
London

100 The Quadrant
Cambridge CB2 1RQ
Tel: 0223 311111

SA

Recruiting for Clients

UNIVERSITY OF EDINBURGH EDINBURGH REGIONAL COMPUTING CENTRE MICROCOMPUTER SUPPORT POSTS

The Centre provides a wide range of Computing Services to the University and Research Councils in the Edinburgh area. It operates a central database in Edinburgh, supporting the various microcomputer systems used in the University.

Applications are invited for three posts in the microcomputer support unit. These posts will involve a wide range of work, including the design, development, testing and maintenance of microcomputer systems.

For further details and an application form, please write to: Mr. J. H. Smith, Edinburgh Regional Computing Centre, 100, The Quadrant, Edinburgh EH1 1RQ.

For further details and an application form, please write to: Mr. J. H. Smith, Edinburgh Regional Computing Centre, 100, The Quadrant, Edinburgh EH1 1RQ.

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If you are interested, and fit these requirements please send a DETAILED personal and career history to: Mr. G. BOULD, 50, BROAD STREET, LEOMINGTON, CARDIFF.

Interviews will be held in London at the end of July. The successful applicant should be prepared to be in Papua New Guinea by early October.

A BETTER LINE OF COMMUNICATION

Due to a period of sustained growth and the introduction of new generations of data communications equipment from our principals including CODEX intelligent network processors, Micro-Systems, Front-end processors, opportunities are now arising at our Croydon office.

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Ideally the successful applicant will have had previous experience in systems programming and preferably IBM Mainframes. Hatch and Interactive Communications and Interfacing Plug Compatible Manufactured Products with I.B.M. equipment.

Responsibilities will include:- Definition of Customer requirements, preparation of proposed systems Generation, Installation and Debugging, Customer Software Support and Operator Training.

SYSTEMS ENGINEERS

This post requires a person with experience of Data Communication Networks, defining systems both as user and in a sales environment. Large proposal preparation and presentation to customers.

Responsibilities will include:- Systems definitions, formulation of proposals, sales training, customer presentations and large system checkouts.

TRAINEE SYSTEMS ENGINEERS

The Company would be interested to hear from Graduates and Engineers who have had experience in the Data Communication and Computer Peripheral Industry and would be interested in establishing a career in data communication system engineering.

An attractive salary package will be offered with the additional benefit of a Company car.

Other benefits available:- Free life assurance and Income Continuance Plan, non-contributory pension schemes, free B.U.P.A. Membership, 4 weeks annual holiday, some assistance can be given with relocation expenses.

If you would like to apply for one of the above positions please write or telephone in the first instance for an application form to Miss S. J. Sewerin, Personnel.

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IBM Systems Programmer

Sweden £ generous
You should be young, (25ish) enthusiastic and gregarious. Our client requires a Technical Product Support specialist to cover locations in Sweden. Product training given; relocation self (and family); up to 2 years in Sweden; longer if wanted. Permanent position with company in N. Berks.

Mini - Micro Systems Company

S. E. Berks £Neg
* Software Designers - BCPL
* Applications Support - Fortran
* Customer Reps - Intelligence
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This is a small, successful company with a go-ahead, dynamic management team. They provide the best pay and conditions for the best people. D.C. minis and 16 bit micros for the next product development.

Computer Services Manager

S. Herts £8K - £10K
An operations services department, within a large minicomputer manufacturing company, requires a hardware services manager to be responsible for the control, availability and maintenance of computer systems used by software and hardware development engineers. There are 15 systems in two locations. You will act as deputy to the Services Manager. Relocation if required.

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Real-Time Pascal Prog.

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Beds to £10,000

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HR

Harvey Recruitment

Executive and Computing Personnel Consultants
500 Chesham House, 150 Regent Street
London W1R 5PA Tel: 01-734 5351

JBA

Database Development

Belgium to c. £30,000

One of the most highly respected Consultancy organisations in the U.K. is currently running a major database development project in Belgium, for which two Senior Consultants are required. The following:

Database Administrator

A thorough knowledge of the background is required for this position, with particular emphasis on such DB/ASYL databases as IBM/AS, Namely, direct DB/AS design experience is the most applicable at this level.

Database Designer/Analyst

Again, sound technical experience is required but with more emphasis on the analysis design aspect. Full data analysis experience would be a major bonus, as would in-depth knowledge of large IBM installations and a financial system background. The project is long term and likely to grow in scope and size. Therefore, a willingness to move to Belgium on a permanent basis - although not an absolute requirement - would be extremely useful. Career opportunities and financial rewards are both exceptional.

Contact: Andy Wright

IMS Database Administrator

Scandinavia to £30,000

A London based Consultancy, of the highest repute in its field, currently has an extremely challenging assignment in one of the major Scandinavian cities for an experienced Project Leader or Senior Analyst with extensive IMS experience. The appointee will establish the Database Administration role for a large organisation which is going to be switching to a fully IMS (db) system. In conjunction with other senior members of the Consultancy, who will be carrying out other analysis, design and project management functions.

Our client will consider candidates only if they possess the requisite technical background, and candidates can be assured that the above assignment would only be the first of many in the database field.

Contact: Andy Wright

Systems Programmers

City Based c. £9,500

An international management consultancy are in the process of developing and marketing a range of applications software for mini-based systems, and need experienced people to join their highly professional team.

A minimum of 2 years experience of minicomputer applications with a preference for DBOL and BASIC languages. The ability to communicate with people at all levels is desirable.

The organisation believes in career development and therefore, candidates with the right skills and background would have every opportunity to progress. Contact: Janet Chilvers

Senior Systems Analyst

West London Neg. to £9,000 + car

A vacancy exists with a mini computer manufacturer for an experienced Analyst, used to working on a variety of commercial business systems, to join a small but highly effective team. The work involves the translation of customer requirements into systems definition, design, and the subsequent implementation of the finished system.

The successful appointee will have sound analytical skills, be able to demonstrate a working knowledge of on-line systems, and have a broad understanding of most facets of business systems development. Written and oral communication is of paramount importance. Excellent career prospects.

Contact: Margaret Stevens

Data Processing Manager

Hampshire c. £8,500

The continuing expansion of the U.K. branch of this aggressive and highly successful international marketing and distribution company, has led to an urgent need to establish an in-house d.p. service. A System 34 has therefore been ordered and is due for installation within the next few months, but since no d.p. expertise exists in the company at all, a Senior Analyst/Programmer is required to set up and run the system.

Candidates must have extensive System 34 experience and be completely fluent in RPG II. The ability to initiate, develop and implement new systems is essential and an outgoing and communicative personality will be sought.

Contact: Andy Wright

Analyst/Programmers

London, EC2 up to £8,500

A very successful international organisation wishes to recruit several ANALYST/PROGRAMMERS to work in small teams to develop commercial on-line applications on an HP 3000.

Candidates should have three years programming experience together with some involvement in the design of systems. A background of minicomputers is obviously desirable but not mandatory as training will be given where appropriate. Interesting and friendly environment.

Contact: Jim Baker

COBOL Programmers and Senior Programmers

Gloucester £8,000 - £8,000

A number of positions are available for programmers with from 1 to 4 years COBOL experience to join our client's new team, developing and redesigning their manufacturing and reporting systems on a new HP 3000.

Applicants for senior positions, i.e. 3 years +, are expected to possess on-line systems experience and be fluent and effective in spec. writing. A knowledge of structured programming would be a marked advantage and candidates should have good management potential.

A relocation package is available for those wishing to move to this beautiful part of the country plus all the normal fringe benefits.

Contact: Brian Postle

Graduates - Micro Systems

Cambridge c. £5,000 +

A small but rapidly growing development group have entered the second phase of a word processor system project and require additional design people. The current work involves the communications ring network, utilising portable software.

Candidates must be totally computer orientated and conversant with languages such as BCPL, PASCAL, RTL2, etc. The ability to work in a team and take on responsibility is important, together with a natural creative drive. Excellent prospects for right candidates.

Contact: Brian Postle

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(1733)



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Their success is not only attributed to a highly motivated and well rewarded sales force along with a support team who have considerable sales awareness, but a product range which caters for any level of computer user.

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(174)

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SYSTEMS FROM FEASIBILITY TO IMPLEMENTATION.

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You should offer at least eighteen months commercial experience. The particular hardware, language or systems are of minor importance.

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TECHNICIAN GRADE 6

Applications are invited for the
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software for micro computer sys-
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essential.

Required as soon as possible after
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Salary on scale £5,037 x 5 incre-
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cations 11th July, 1980. (1739)

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The University of Aberdeen is seeking
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Contracts in Kuwait, 6-12 months, approx.
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18 months' min. COBOL experience. Jobs on Mainframe and MVS.
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3. Very good earnings, in the £6,000 to £10,000 bracket to start, according to experience.
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We are recruiting on behalf of clients, a large West End installation. This opportunity will interest programmers with at least 1½ years' practical programming experience, including COBOL. Team leadership ability is required at the upper end of the salary range.

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(1789)



EDP SYSTEMS 01.637
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Computer Systems Engineers

Office of the future W. Country.
Our client requires three experienced computer engineers to install integrated electronic office systems at pilot sites in the UK. The heart of the system is a unique distributed intelligence processor. Candidates must be prepared to spend 4 to 6 months in California for training on this machine. Computer telecomm and software knowledge are required. Your experience will be used to form a base of expertise in this attractive West Country location. Salaries c. £10,000.

Senior Micro Engineer

S. Bucks to £9,000
Our client requires an experienced microprocessor engineer to join a micro systems section in their process control R & D centre. You will investigate, design and install new micro based applications throughout the company's plants in UK. A mix of software and hardware skills is desirable. Suggested experience will be with Z80, 6800, 8080 or similar.

Micro Enthusiasts

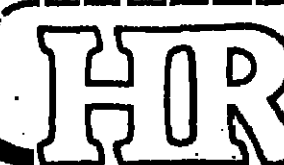
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Bright, young qualified candidates are required to work as programmers and engineers on a world leading micro system. There are opportunities in support, marketing and engineering repair. Excellent ground floor positions.

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C. London \$ generous
A large management consultancy is offering the opportunity for several candidates to develop their programming skills working on package development on IBM 5100, PDP 11/34 and Wang 2200 minis. You must have a degree or equivalent and the potential to develop within the company.

S/W Development Progs Bedford £6K-£10K
S/W Tech Authors Many locations to £9,000

Apply in confidence to Terry Harvey by sending personal and career details, or contact him for an application form, evenings
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Harvey Recruitment

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500 Chesham House, 150 Regent Street,
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Computer Services Manager Speke

We are responsible for the UK manufacture of Glaxo Pharmaceuticals and their sale in this country. The Company is engaged in the implementation of a large network of Hewlett-Packard HP 3000 mini-computers involving all Company locations and based around a large central ICL mainframe. There is a heavy development programme of advanced on-line systems being built around a distributed database, predominantly in the production planning and recording, inventory control and quality assurance areas.

We wish to appoint a manager for the Speke installation which has two mini-computers, one of which is linked to the ICL network and the other linked to a central ICL mainframe.

The successful candidate will manage a team of twelve people and must be able to demonstrate sound technical and operational capabilities and management judgement, and be able to establish good working relationships at all levels in an environment that will demand a high service level and personal commitment. The manager must be able to spearhead developments of significant importance to the Speke factory while also contributing to the Company programme of systems development. He or she will be expected personally to undertake systems analysis and have sound programming experience.

Experience in an on-line environment and of manufacturing systems in a chemical or pharmaceutical industry would be an important advantage and recent management or supervisory experience is essential.

Attractive conditions of employment include profit sharing scheme, non-contributory pension scheme, and assistance with relocation where appropriate.

Please write for an application form to: Mrs V. A. Waters, Personnel Officer, Glaxo Operations UK Ltd., Greenford Road, Greenford, Middlesex, or call 01-422 3434, ext. 340, quoting ref. FY 116. (1743)



PDP PROGRAMMERS

Our Associated Company, Logsys Computer Services, is a Software House based in Berkshire, that specialises both in the provision of expertise for real-time and complex software projects, and in providing commercial systems, on PDP and VAX hardware. Specifically at the moment they require:

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Senior programmer for No. 2 position in real-time project. Ideally, applicants should have Device Driver design experience. Genuine opportunities to move onto VAX or into system design.

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Programmers to work on PDP 11, MTS real-time Radar processing project.

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Experienced programmer for work on commercial systems both for first time and also more experienced users.

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To discuss these permanent positions please telephone Mike Wilson on Crowthorne 77921 or 3370 (day) or Farnborough (Hants) 46083 (eve./weekend).

Computer & Management Personnel, 78 Little Brinkin, London, E.C.1.

AEROSPACE PROJECTS

West Germany

Analyst Programmers/ Systems Programmers

DM 50,000 — DM 80,000

Science Systems Ltd., a systems house specialising in the scientific/technical areas of computing, are seeking to recruit a number of experienced personnel to work on advanced technology projects in West Germany.

Ideally candidates should possess a numerate degree and have had a minimum of two years programming experience in a real-time environment using FORTRAN and/or ASSEMBLER.

Exposure to any of the following hardware would be extremely advantageous.

SEL 32/70 series
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Apart from the attractive salaries, Science Systems offers removal and other expenses plus the normal benefits that are associated with a progressive company.

Contact Derek Ashley at:
SCIENCE SYSTEMS LIMITED
60 Kings Road, Chelsea,
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01-581 1481

**science
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IMMEDIATE CONTRACTS FOR PROGRAMMERS

IBM 370 Middle East
£20,000 P.A. plus expenses

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COUNTY SURVEYOR'S DEPARTMENT

Invites applications for:

Analyst/ Programmer

£5,973-L/077 (review 1st July, 1980)

The Technical Services Group provides a support and development service to the Department in all non-financial applications.

The range of systems in use includes highway and bridge design, survey analysis, management information systems, etc.

The County Council has an ICL 3904S computer which is also to be replaced by a larger ICL 3974 machine running under VME/38. The Department has extensive facilities including RJE and video terminals, teletype terminals, desktop computers and a Benson all-line plotting system. The post holder will be responsible for the operation of all existing systems and for the development of new systems.

Applicants should have an understanding of financial background and a relevant degree or HND/HNC with substantial experience in the design and development of systems. A knowledge of FORTRAN is required. Experience of COBOL and of GEORGE III or VME/38 is desirable.

Relocation expenses payable in appropriate circumstances starting salary dependent on experience.

Application forms and job specification available from the County Surveyor, Mr. Peter A. Jones, Cudor House, 105-107, The Strand, London WC2R 0EY. Tel: 0473 34228, ext. 300.

Closing date: 1st July 1980

Suffolk County Council

INTERNATIONAL TRAVEL ORGANISATION IN PUTNEY

Hotelplan a Swiss-based Company require an

ANALYST PROGRAMMER

to join their young computer team currently developing new travel systems on their UNIVAC 90/730 computer systems.

Hours 9 a.m.-6.30 p.m. Monday to Friday, generous holiday concessions, L.V.s.

If you have 18 months' experience in COBOL and preferably some knowledge of OS/3 operating systems why not write to us at the address below for an application form enclosing a brief C.V. of previous experience.

Mr. D. Davelli, Personnel
HOTELPLAN INTERNATIONAL
328 Putney Bridge Road, London, S.W.15 (1708)

RESTORMEL BOROUGH COUNCIL CORNWALL

APPOINTMENT OF COMPUTER MANAGER/ PROGRAMMER

Grade S02 £7,287 to £7,722

The Council will soon be upgrading its installation to an ICL 2902 with 40 K words random access and 2.802.50 disc drives. Input will be via DEC key stations. At present the Council operates using a ICL 2902 with 16 K words random access and 2.802.50 disc drives.

An enthusiastic person is required to take control of the computer system and to ensure that the system is running efficiently. An enthusiastic person is required to take control of the computer system and to ensure that the system is running efficiently.

This is an excellent opportunity for the right man or woman to obtain further experience in computer management and programming and to develop new systems at the outset of the new installation. The borough is situated in Mid-Cornwall and includes the town of Newquay in the north with its fine beaches and sandy bay, and the town of Bude in the south. The surrounding rural area is of exceptional beauty and is well served by the railway. New offices are in the process of being built in St. Austell, with completion anticipated early in September, 1980.

Applicants, with appropriate qualifications, should send their applications, stating age, qualifications, present post and salary, and any experience, together with the names and addresses of two referees, should be made by 28th July 1980 to: The Treasurer, John Kay, Hellen, Trevelyan, Roper, St. Austell, Cornwall PL23 4PA.

Closing date: 28th July 1980

Restormel Borough Council

MYRIAD

SYSTEMS SOFTWARE PROGRAMMERS

THAMES VALLEY

£7-£10,000

A commitment to new systems software product development has now created a range of positions with our client, a major mini computer manufacturer based near Windsor in the Thames Valley. These are systems software programming positions which will offer the successful candidates the opportunity to perform design and programming work on new software products related to interactive systems, teleprocessing and database.

Ideally applicants will offer a minimum of three years of Assembler level programming experience, together with some software design knowledge and the people appointed can expect to contribute fully to all aspects of the development.

The company is pleasantly situated in modern offices and offers benefits including relocation and subsidised restaurant facilities.

REF. NW1/2606

POTENTIAL ANALYSTS

N.W. LONDON

TO £8,500

Our client is a market leader in its particular sector of the retail industry and wishes to recruit additional Analyst/Programmers keen to develop their own careers into analysis.

Employing the use of database facilities in many applications, the successful applicants will join small project teams assigned to develop commercial systems from feasibility to successful implementation. Based towards the financial areas of business, candidates will be encouraged to become fully involved in all aspects of systems design, user liaison and system implementation. Formal training will be provided where necessary in all areas of Data Processing.

Successful applicants will be able to offer at least three years' DP experience, ideally in an IBM environment, and have had some exposure to systems analysis in an analyst/programming position.

In addition to a positive career path a full range of company benefits is offered including a generous discount on company products.

REF. N1/2606

BUSINESS SYSTEMS ANALYSIS

WILTSHIRE

£7-£9,000

Our client, a major commercial organisation, is seeking to recruit systems analysts wishing to undertake challenging project work in a highly successful business environment.

Current project work includes the development of teleprocessing systems based upon advanced hardware and candidates can expect to gain valuable new systems experience as well as utilising their own background to the best effect.

A sound commercial systems background is required together with business systems appreciation as the role will require the development of systems from initial business feasibility, through design to implementation.

The company offers a package of benefits which one would expect from a successful business operation and this obviously includes relocation assistance to this very attractive area of the U.K.

REF. NW2/2606

ANALYSTS TO SENIOR ANALYSTS

NORTH OF LONDON

£8,000-£11,000

Reflecting the demand of their users, our clients have vacancies for experienced Systems Analysts.

Joining a company whose Data Processing is still developing will provide scope for individual advancement and opportunities to take full project control responsibility for certain systems. Employing Database and on-line techniques in nearly all new developments on their IBM mainframes will provide a stimulating environment to design and implement systems encompassing financial, stock movements and business forecasting systems.

Candidates should possess a solid DP background, preferably through a programming discipline, and have successfully controlled the implementation of at least one commercial system.

In addition to attractive starting salaries, comprehensive conditions of employment apply together with the assurance of career progression geared to individual merit and performance.

REF. N1/2606

SYSTEMS ANALYSTS

CITY

TO £10,000

This is an exciting opportunity for experienced Systems Analysts to effect an important career move.

Our client, located in the City, is seeking to expand his range of projects under development by recruiting additional systems staff.

If you can offer:

- Two years plus experience.
- Involvement in at least one project.
- The potential for project leadership.

Our client can offer:

- A stimulating and highly professional environment.
- Excellent career progression.
- Extensive development work using advanced techniques.
- A starting salary to £10,000 + good benefits.

Our clients will also consider Analyst/Programmers who wish to move into a full systems analysis role.

REF. F2/2606

PROGRAMMERS TO PROJECT LEADERS

LONDON/S.W. ESSEX

£6,000-£9,500

Our client has outstanding openings for PROGRAMMERS through to ANALYST/PROGRAMMERS and PROJECT LEADERS. Successful candidates will work within a stimulating and highly professional environment using the most advanced techniques on a range of development projects.

PROGRAMMERS should have a minimum of one year's COBOL programming experience.

ANALYST/PROGRAMMERS should have a minimum of two years' experience; these positions will appeal to Senior Programmers who wish to move into systems analysis.

PROJECT LEADERS should be capable of designing and controlling projects from feasibility to implementation. In addition to real-time experience, a programming background is desirable.

Salaries cover the range £6,000 to £9,500 depending on the position.

The company has an outstanding record of growth and offers a secure and progressive career to the people appointed.

REF. E1/2606

TECHNICAL PROGRAMMERS

N. SURREY

c. £8,500

As modern technology surges ahead, so is the demand for machine-oriented programmers who are capable of adapting to a range of small, yet powerful, machines. Our Client would like to discuss the positions which are currently available at their NORTH SURREY offices for LOW-LEVEL PROGRAMMERS seeking to develop "state-of-the-art" software. Some of these vacancies may well be filled by Systems Programmers, currently at mainframe installations, who would like a more interesting challenge, coupled with project management responsibilities.

The Company is a completely autonomous subsidiary within a very large group and is therefore able to offer a secure future and positive career to all employees, with rapid advancement for those persons displaying above average talents. For further information regarding these positions, please telephone: 01-333 9981, quoting

REF. S2/2606

MOVE TO ANALYSIS

C. LONDON

£6,500-£8,500

Three ANALYST/PROGRAMMERS will strengthen a project team which has just completed the initial stage of a real-time, financial system. They will assist with the system design, program specification/development and the subsequent implementation of the system on advanced mainframe equipment. Great importance is placed on the "top-down" approach to program design so applicants should be conversant with this methodology whilst possessing a sound knowledge of COBOL.

On completion of this project, they will join systems teams to investigate user requests and be responsible for the feasibility studies under the direct guidance of a Senior Analyst.

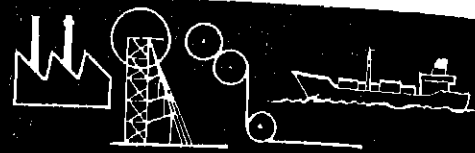
Based in CENTRAL LONDON, one of the positions will be filled by a Junior person in the salary range £5,500-£7,500 and the other two will attract c. £8,500 p.a. depending on their experience.

REF. S1/2606

MYRIAD APPOINTMENTS LIMITED

30 Fleet Street London EC4Y 1AA Telephone: 01-333 0981 24 hours

NORTHERN APPOINTMENTS



Where the grass is greener.....

THERE has never been a better opportunity for people in DP to develop their careers in the North. Unfortunately the individual is often faced with a bewildering and confusing selection of seemingly good career opportunities.

How do you sort the wheat from the chaff? Is it the right move for you? Should you even be considering moving from your present company? These are questions not easily answered.

Someone has to sort through the maze and pluck out the right career opportunity, the correct move for you.

It is essential that the person entrusted with this is a fellow professional with practical experience in your area of specialisation.

The consultancy should preferably be seen to have a policy of employing high calibre, mature and experienced consultants to enable the completion of recruiting assignments over a broad range of high technology industries.

A professional consultancy has in-depth experience in creating job specifications; writing advertising copy; placing it in the right publications; reviewing salary scales; interviewing and screening; presenting short lists; and arranging letters of offers and subsequent acceptance.

While looking for the professional consultancy, it is always preferable to choose one with an office not only in the North but in other locations. This will ensure that the full range of opportunities available for the development of your career can readily be identified.

When you are finally talking "over a desk" with a consultancy, ask the consultant to explain the modus operandi of the organisation, what relevant experience the consultants have, job and company specialisations, procedure for submissions to prospective employees and progress reporting.

Remember he is acting on your behalf and the more professional his approach is to companies, the better you will appear as a potential employee.

Photocopied application forms or hastily prepared resumes will not put you in a good light. When you have decided that the consultancy is professional enough to represent you, and you feel comfortable, then you should start discussing your background and aspirations for the future.

During your discussion the consultant will be building up a picture of your past experience and through asking relevant questions, will be identifying areas where your skills and potential can be directed to the advantage of your career.

When he has identified opportunities he will discuss the background of employers, including their employment package, relocation details, career progression and working environment including the individual personalities within these companies.

He will also be able to advise on housing in the North, areas to avoid, estate agents and mortgage companies to contact.

There are so many career opportunities not advertised in the North that the individual can only hope to hear about a small percentage of these through his own resources.

There are computer manufacturers, both expanding and opening new offices in the area; computer bureaux and software houses going through large expansion phases; and there are numerous user companies, from the smallest mini through to the largest

data processing installation in Europe, undergoing development in the areas of distributed processing, communications, databases, CAD, and microtechnology.

Another advantage of the North for people moving into the area is housing, up to 50 per cent cheaper than comparable houses in the South.

The professional consultancy will guide you through the maze, and open windows and doors to Northern opportunities you may not even have considered.

So many people have had bad experiences with the smaller consultancies, that time spent talking to a professional consultancy's Northern office could change your career direction and ultimately change your life!

Your skills as a field engineer; in operations; in programming and analysis; in sales or marketing, at all levels, have been earned. So choose wisely and carefully that professional consultancy — via which path the grass is greener.

● The author is a senior consultant with the Manchester based firm, IMPC.



Northern Computer Opportunity

YORKSHIRE-BASED SALES EXECUTIVE

Approx. £16,000 p.a. + car (+ guarantee)

Experienced Salesman to open up Leeds office, and sell minicomputer systems in the East of the Pennines. Customers include large, well-known international companies. Products already have a 'Big' name and have 'Sold Well' for years.

REF: JG26

SELL IN SCOTLAND (BE YOUR OWN BOSS)

c. £16,000 p.a. + car (+ guarantees)

Our Clients require a self-supporting Sales Executive to be responsible for Sales and Support in Scotland. There is an existing user base and more to come. You will be selling a very successful internationally recognised minicomputer system. The whole system is 'UNIQUE'. Existing customers are household names.

REF: JG24

These are new positions, and are the start of UK-wide expansion. GUARANTEED ANNUAL INCOME of £10k (+ EVERY YEAR).

(100)



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EXCELLENT BASIC SALARY PLUS GUARANTEES, AND ON TARGET EARNINGS COULD BRING YOU

£30K to £40K
(and company car and benefits)

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quoting ref: JG-23

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NORTHERN APPOINTMENTS

UNIQUE OPPORTUNITIES IN REAL TIME INDUSTRIAL SYSTEMS

YORKSHIRE MOORS

START UP TO £8,500

SYSTEMS ANALYSIS & DESIGN · PROGRAMMING · LOGIC DESIGN



The Company is a specialist in the REAL-TIME field, in control, logging and monitoring with applications in a wide range of INDUSTRIAL and TECHNICAL markets. Vacancies exist for all levels of experienced HARDWARE and SOFTWARE staff, offering considerable scope for innovation and initiative. Excellent long term career prospects.

MICRO's

Wide range of applications where staff take responsibility for individual projects including low power applications. Experience of MICRO electronics and/or high and low level languages or digital systems design is required.

If you have good academic background and experience in this field regardless of age then these vacancies will certainly be of interest to you.

Join a small rapidly expanding group with multi-national backing, but with the attractions normally found with a small company approach to business. These are outstanding opportunities in Rural Yorkshire, Cleveland within easy travelling of Dales, Moors and Seaside Resorts. Their office premises are based in a small market town, on your doorstep are excellent sporting facilities such as fishing, sailing and walking. Housing costs are most competitive in this attractive greenbelt area.

MINI's

Experience with DEC, SPERRY or CAI machines are of particular interest, with operating systems and languages appropriate to REAL-TIME applications. (ASSEMBLER, CORAL, RTL2 etc.)



For further information phone IRENE ROGERS on Sheffield (0742) 738794 (office hours) or Wakefield (0924) 71810 (evenings/weekends). Alternatively write in confidence to the Sheffield Office.

QUADRANT RECRUITMENT LTD

Bank House, Queen Street, Sheffield S1 1UF.

(1084)

MANCHESTER

Senior Systems Programmer Salary £8,500

A Senior Systems Programmer is now required for this client who is about to take delivery of the first of 2 IBM 4341 running under C/VS1 to support a sophisticated distributed processing network utilising DEC PDP11/70 hardware. Responsibilities will include ensuring that all computer operating systems and associated software, including telecommunications software, and database software is installed, tested and maintained, and therefore calls for a strong background in IBM software and database systems in both control and maintenance, and therefore calls for a strong background in IBM software and database systems in both control and maintenance, and therefore calls for a strong background in IBM software and database systems in both control and maintenance.

Ref: CW 1680

SOUTH MANCHESTER

Programmers and Systems Analysts

Our Client has recently purchased an intelligent network control system and now seeks communications based staff in either programming or systems analysis discipline to work in their Communications based systems. In particular, they require staff for the technically oriented areas of on-line real-time and systems recovery. Software Programmers with UNIVAC 1100 ASSEMBLER would be of particular interest.

Ref: CW 3680

SALE, CHESHIRE FEDERATED

Senior Programmer Salary up to £9,000 - INSURANCE COMPANY LIMITED

Federated Insurance Company Ltd. is a progressive Company whose Head Office is based in a modern building, centrally located in Sale, Cheshire. The Company has recently taken delivery of an IBM 4331 operating under C/VS1 which is due to be replaced by a 4341 during 1981. To assist in the installation of this new hardware and development plan they now require a Senior Programmer with considerable experience in IBM 4331 series software (C/VS1) with a minimum of 3 years experience in IBM 4341 hardware environment, having a good knowledge of distributed programming techniques, using COBOL and ASSEMBLER. You will preferably also have been involved in online operations using C/VS1. Knowledge of hardware and telecommunications would be an advantage. The Company offers excellent salary and conditions of employment, with a pension scheme and a comprehensive benefits package.

PRESTON

1 Senior Systems Analyst Salary up to £7,800
3 Systems Analysts Salary up to £7,500

The Computer Services Division of a National Organisation has recently embarked on a dramatic expansion programme utilising 3 x Olivetti 1100s supporting 28 x V77 microcomputers in an exciting telecommunications environment. To enhance the existing professional team, they now require 1 Senior Systems Analyst who will be engaged on the systems analysis and design of new financial projects and 3 well-motivated Systems Analysts who will be responsible for the on-line systems. The 3 Systems Analysts will be engaged on other commercial projects and will have approximately 2/3 years experience of systems design, preferably using some online experience. Although a degree background would be useful, the Client will provide full training and no previous experience is necessary. These vacancies represent excellent long-term career prospects with a Company totally committed to a D.P. expansion programme. Assistance with relocation expenses where necessary.

Ref: CW 2680

SOUTH MANCHESTER

Chief Programmer Salary up to £9,000
Senior Programmer Salary up to £7,500

As the Computer Services Centre for a major engineering organisation, our client offers comprehensive group computing services based on IBM 3033 hardware with an extensive telecommunications network supporting remote job entry, timesharing and on-line users. The expanding development of on-line systems has resulted in the need for additional senior staff with a professional and ambitious approach. Ideally they require candidates with a minimum of 3 years COBOL experience preferably off IBM equipment. A knowledge of IMS and on-line techniques would be an added advantage. Attractive large company benefits apply including relocation expenses where necessary.

Ref: CW 4678

NORTH-WEST

Quadrant Recruitment Ltd. are always looking for Professional Freelance Programmers, Analysts, Programmers and Systems Analysts with at least 4 years' related experience.

We can offer you:
• Competitive Rates
• Confidentiality
• Professional Qualities in all financial matters
• And of course, all the other facilities you can expect from an established organisation with a high reputation.

Ref: CW 6678

24 Moseley Street
Manchester, M2 3AG

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BUSINESS ANALYST

Cost Modelling, Financial Accounting, Systems and Network, Design experience. Imminent start. Initial 3 month contract. Midlands location.

c. £300

SENIOR ANALYSTS

ICL 2950 GII and DME, QMAC and BOMP experience. Imminent start. Initial 3 month contract.

c. £300

Analysis

PHONE OUR JOB LINE
NOW FOR ALL
THE VACANCIES
WE'VE HAD IN
SINCE GOING
TO PRESS!

SYSTEMS ANALYSTS

HP 3000 experience preferred, but not essential. Good programming background. Production control, 12-month+ contract. Immediate start. North West location.

c. £300

DEC 10 FORTRAN. Operational Resch. c. £300 North West Location.
ICL 2950. Senior Analyst. QPAC. c. £300 Midlands Location.
Analyst, Engineering background. c. £300 North West Location.
Technical Author. IBM DOS. c. £300 Various Locations.
ICL 8900 Team Leader. c. £290 North-West Location.

Analyst Programmers

ANALYST/PROGRAMMER

UNIVAC 1100 running under EXEC 8. Good FORTRAN experience. Knowledge of COBOL & UNIVAC. Demand processing. Immediate start. Three-month contract. North West location.

c. £300

ANALYST/PROGRAMMER

IBM/DOS/COBOL. Knowledge of ADR Librarian and VOLLIE (LIBOL) & MK. IV added advantage. Liaise with users at working level. Immediate start. 6-month contract. North West location.

c. £280

ANALYST/PROGRAMMER

PDP/11 RSX11 RIL2. Communications / Software background desirable. Immediate start. 6-month contract. Midlands location.

£300

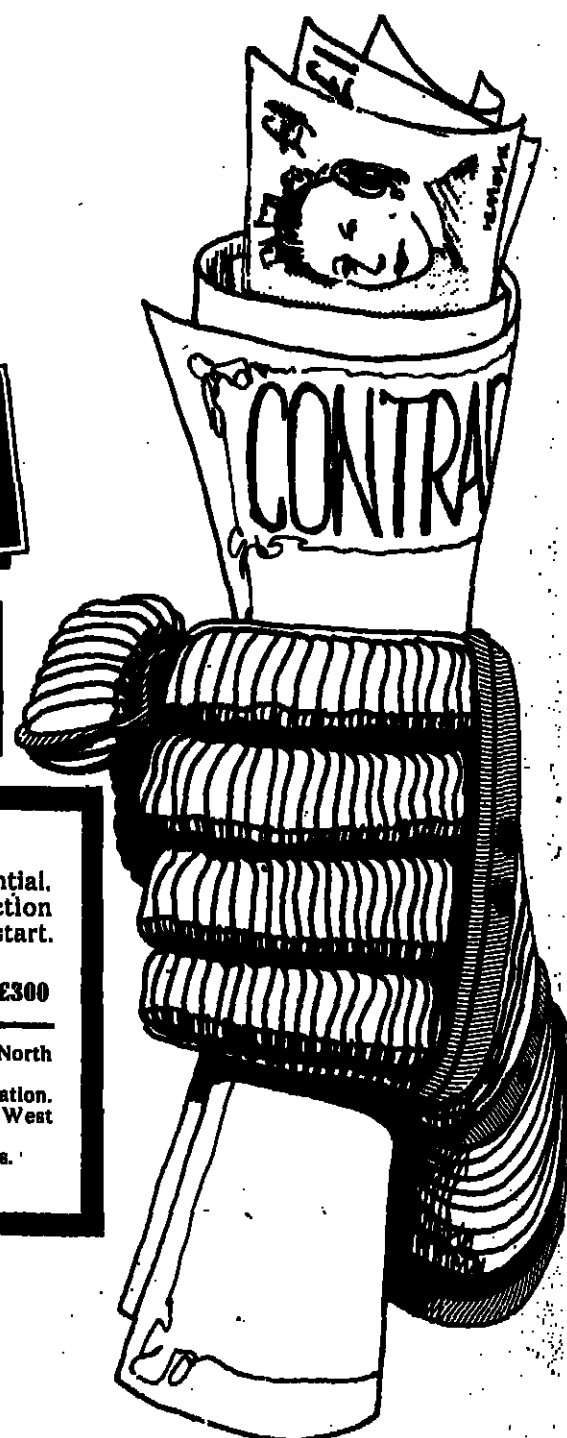
IBM COBOL & DLI. c. £270. Midlands Location. Scientific FORTRAN. c. £280. North West Location.
ICL 2972 VMEB COBOL. c. £280. North West Location.
IBM 370/OS PL1. c. £270. Midlands Location.
HONEYWELL 68 IDS/TDS. c. £270. Various Locations.

Ring any time
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for fast
attention

For more information, an informal meeting or interview for CONTRACT vacancies
RING Manchester (24 hours) Birmingham 021-643 8867 (24 hours)

London Manchester Birmingham Paris Amsterdam Liege and New York

NORTHERN APPOINTMENTS



NORTHERN APPOINTMENTS

Outstanding Opportunities

Our client, a well known company with strong international connections, has a most enviable record of sustained profitable growth.

This growth continues and is expected to accelerate in rate and to support this expansion the existing data processing department is to be strengthened in the systems development section.

The overall prospects for advancement are excellent and the general working conditions and financial rewards, which include relocation assistance, will stand favourable comparison with any in the region.

Interested candidates should contact Ivor Norton at the Harrogate Office quoting the appropriate reference.

PROJECT MANAGER

This position will present an experienced systems analyst with a challenging and stimulating job. Candidates must be able to work at a senior level with users and be capable of controlling the work of a small team. Previous experience, which should ideally include a programming background, should have involved the development of computer based systems in the areas of stock control and large scale customer order processing and accounting. (Reference CW/8060)

SYSTEMS ANALYST

Candidates for this position must have at least two years experience in systems analysis and design, following a period as a programmer. Previous applications experience should include stock control and order processing. (Reference CW/8061)

PROGRAMMER

An excellent opportunity exists for a young COBOL programmer to join this small but ambitious development group. The only requirements of our client are two years COBOL plus the initiative and enthusiasm to warrant further promotion at an early date. (Reference CW/8062)

West Yorkshire

to £25000

to £7500

to £6500

Ivor Norton Management Services Ltd

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Harrogate 68628

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11 Bothwell Street,
Glasgow G2 6LY
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Programmers

The earnings you've promised yourself
are here at last

SYSTEMS PROGRAMMER

IBM 3031 OS/MVS. Knowledge of VTAM required. Immediate start, six-month contract. Midlands location.

c. £280

PROGRAMMERS

IBM/DOS/VS POWER/VS ASSEMBLER. Knowledge of CICS and TOTAL, ideal but not essential. Immediate start, six months+ contract. North West location.

c. £280

PROGRAMMERS

Realtime environment. PL1/TMS/DB/DC and ADF desirable. Stock control. General Financial applications. Immediate start. Long- and short-term contracts. Midlands location.

c. £300

IBM COBOL/CICS. c. £280. Various Locations. Burroughs MCP/DMS2. c. £280. Various Locations.

ICL 2900 VMEB/IDMS. c. £270. Various Locations. Systems Programmer IBM/OS/TCAN. c. £280. North West Location.

Commercial FORTRAN. c. £270. North West Location.

Knight Programming Security Deal

1. Absolute confidence guaranteed.
2. Completely informal meetings, where and when you want.
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5. Continuous work for security of employment.
6. Accommodation assistance.

We've produced a guide to contract work just for you pointing out all the things you have to know. Phone now for a copy of this special problem solving leaflet. All you need to know about going contract the Knight Programming way.

IMI

IMI Marston
Radiators Ltd

Systems Analyst/ Programmer Baldon

IMI Marston Radiators Limited is a leading national producer of heat exchangers for the vehicle and engineering industries. It is a multi-plant company with an impressive growth record and plans for further expansion.

We are now seeking a young SYSTEMS ANALYST/PROGRAMMER to work on the development of communications based systems on a wide range of applications using a modern Honeywell computer. The job offers considerable challenge and scope for self-development.

Applicants (male or female) should have at least 2 years cobol programming experience and have successfully implemented at least one major system. Ideally in a communications environment. Experience of Honeywell computers would be an advantage.

The Company offers a competitive and progressive remuneration package and a first class working environment. Assistance will be given with relocation expenses where appropriate. For more information and an application form contact: Eileen Jack, Headquarters Personnel Department, IMI Marston Radiators Ltd, Baldon House, Oakley Road, Baldon, West Yorkshire BD17 7JR.

CW Computer Staff

NORTH WEST VACANCIES MANCHESTER

PROGRAMMER - One £8,500 + large company benefits.
SYSTEMS ANALYST - £7,500 plus + large company benefits.
IBM installation requires a Systems Analyst and an experienced programmer for a variety of development work. The present hardware is a 370/158 soon to be replaced by a 4341. The Systems Analyst should have a minimum of two years' experience in a manufacturing industry on production and stock control systems. DLI Database experience will be an advantage. The programmer should have around two years' experience of COBOL. Experience of CICS would be an advantage.

LEEDS AREA
PROGRAMMERS - One £7,500 + excellent benefits.
SYSTEMS PROGRAMMERS - One £8,500 + excellent benefits.
This large commercial company is currently looking for ASSEMBLER, programmer with experience of ICL equipment.
DEC. Systems Programmers are also required. Experience on PDP 11 equipment is preferred.
The Company has an ICL 2960 and PDP 11.

LIVERPOOL
SENIOR PROGRAMMER - One £7,500 + benefits.
Central Liverpool Company requires a senior programmer with ICL COBOL. Benefits with this company include a subsidised mortgage after a qualifying period.
FOR DETAILS OF THESE AND MANY OTHER VACANCIES PLEASE TELEPHONE OR WRITE TO CW COMPUTER STAFF, 6 The Crescent, Cheshire, Cheshire, 091-428 3266/6 for POYNTON 8778 16 after 5 and 1st weekend.

South Yorkshire County Council PLANNING DEPARTMENT

Junior Planning Assistant (Computers)

POST REF: P187 Grade AP2/5
Salary £3,990 to £6,381

The Planning Department is looking for a Junior Planning Assistant with suitable experience to join a small team engaged in programming and systems work. In addition to undertaking general programming duties, the successful candidate will contribute towards developing computer systems to meet the data processing needs of the Department.

Applicants must have a working knowledge of COBOL and, preferably, FORTRAN. Experience in the use of ICL mainframe and packages and the SERCOS 9 Operating System would be an advantage. Applications will be considered from trainee programmers as well as from persons with more experience.

The Department is linked via VDU to the County Council's 18045 computer and also has access to a CAOM 4000 Plotter/Duplicator. Further information can be obtained by contacting Dave Wilkins, Barling 881 81. Ext. 482.

Closing date for applications will be 11th July 1980.

Please write or telephone for an application form quoting the appropriate post reference to the Personnel Department, South Yorkshire County Council, County Hall, Sheffield S1 1NF. Telephone: 552251 (0114) 552251.

PROGRAMMERS

to £7,728 p.a.
(Plus Review in July)

West Yorkshire

Our client, a large UK company with an annual turnover exceeding £200m has vacancies for programmers on their IBM mainframe. They offer:

- EXCELLENT SALARIES WITH TWICE YEARLY REVIEWS
- FULL RELOCATION PACKAGE
- GENEROUS STAFF DISCOUNTS
- FLEXITIME

Applications are invited for D.P. staff who have at least 1 year's experience of assembler level programming, preferably on a IBM 370 under DOS/VS and who are interested in working on a new agency accounting system.

For more details and a brief application form contact IRENE ROGERS on 0742 738794 or 0924 71810 (evenings) stating which organisations you would not want your details to go to.

Quadrant Recruitment Ltd.

Bank House, Queen Street, Sheffield

Unique Database Development/Computer Aided Design opportunities: £6.5K-£9K

IN NORTH WARWICKSHIRE a £2.5 million DATABASE DEVELOPMENT FOR DP AND COMPUTER AIDED DESIGN is being set up by a profitable and established manufacturing company with modern offices in rural surroundings.

Our client is replacing current DP facilities with a UNIVAC 1100/60. A DMS 1100 database will support 50 on-line DP terminals within 18 months and CAD systems supporting 14 automated draughting and design terminals are also being installed.

A wide range of outstanding opportunities in an expanding department exist for DP professionals with a minimum of 2 years relevant experience:

Business Systems Development

Responsible for all on-line, database developments for 5 manufacturing sites in the Coventry/Birmingham area.

- Senior Analysts
- O & M Analysts
- Analysts
- Senior COBOL Programmers
- COBOL Programmers

Technical Systems & Support

Responsible for the UNIVAC 1100/60 and the CAD Systems with their networks.

- COMPUTER CENTRE MANAGER - a UNIVAC 1100 Operations Management or Network Control background is essential.
- TECHNICAL ANALYSTS - an engineering background with CAD experience is essential although in-depth DP knowledge is not.
- SENIOR SYSTEMS PROGRAMMERS - UNIVAC 1100 software experience essential.

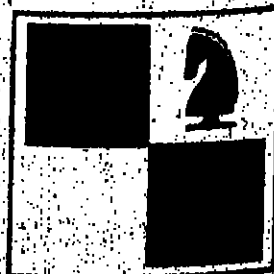
In addition to excellent Salaries, Benefits include:

COMPREHENSIVE RELOCATION PACKAGE
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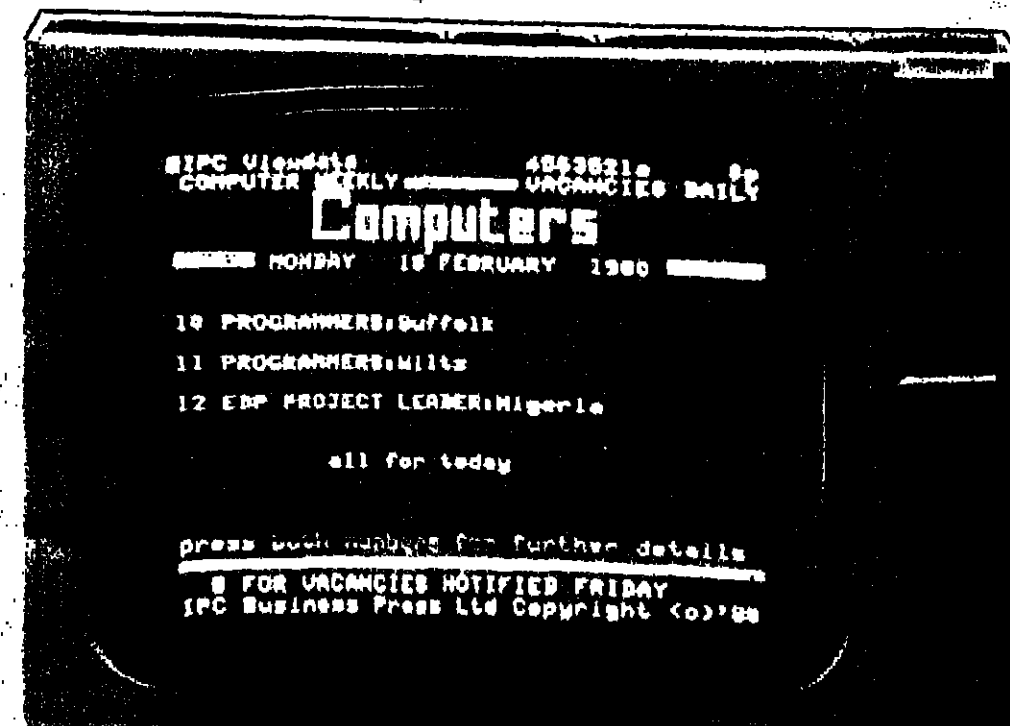
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COMPUTER WEEKLY

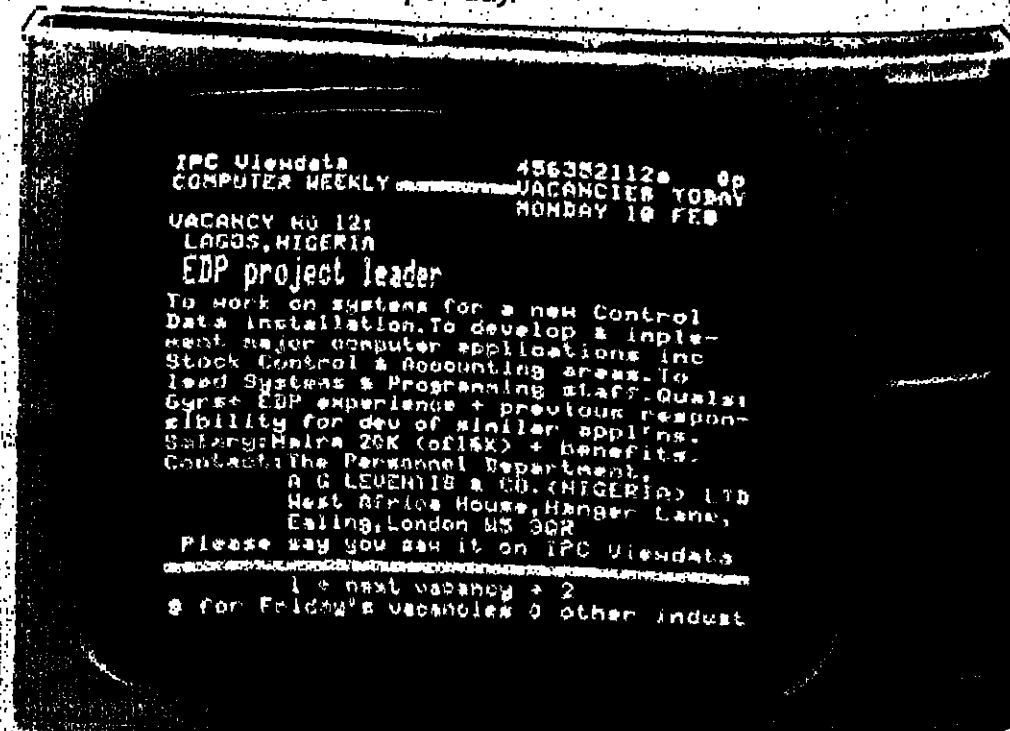
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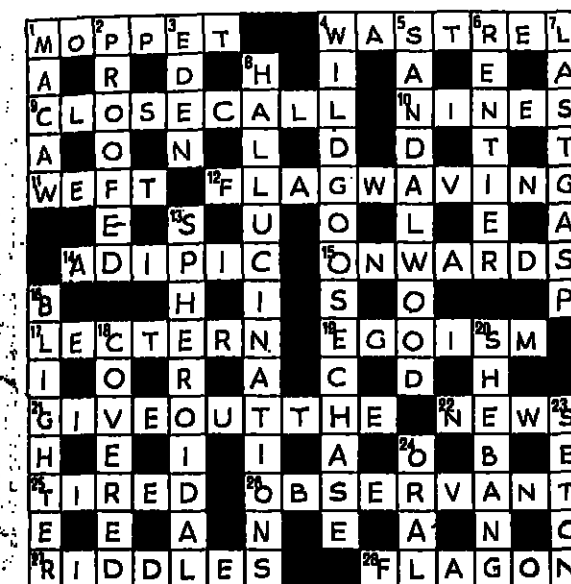
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GW Prize Crossword No 5

SOLUTION

WINNER of Computer Weekly Prize Crossword No 5 is Colin Morris, credit controller with wholesale stationers J. A. Mason of York. He receives the first prize of £10. Second prizes of £5 each go to Garry Lockley, an aircraft designer with British Aerospace, and Rachel Britton who works in the computer section of the Engineering Department at Cambridge University.

Prize Crossword No 6 will be published next week, July 3



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THE SALES BIT

Selling in a recession

AS I have said in this column many times before, the difference between sales success or failure is often no more than an attitude of mind.

The winning of the order often depends on the ability of the salesman to sustain a positive stance within the sales situation rather than become involved in the negative dialogue of all the reasons why success is unlikely.

Once again we are apparently entering a period of worldwide economic recession. I have always believed that there is nothing more likely to create economic recession than politicians and economic pundits forecasting that we are about to have one.

One could almost believe that economic recession is a standard product of Rent-a-Disaster, a service company specialising in the provision of calamities that appear to justify the government of the day and sustain full employment for MPs. But, I digress!

In periods of impending or existing economic decline the buyer is given the best excuse in the book for not buying, and for many salesmen such circumstances provide an ideal excuse, not only for failure, but also for not getting out in the street and even trying to sell.

What actually happens to the buying process during times of recession? Clearly it depends on the type of product one is selling. Luxuries are obviously harder than essentials.

However, it is fair to say that almost no market dries up altogether; there is always business around somewhere.

It is in this kind of environment that the determination to get out there and win enables some salesmen to shrug off the apparent limitations of economic recession and still make sales quota, while others sit in their offices whining over copies of the Financial Times, cursing the fates for their ill fortune.

One can argue quite convincingly that any service or equipment designed to promote efficiency must have greater justification in times of industrial restraint than during economic boom. If savings are to be made they can only be achieved by increased productivity and not by cutting the numbers and hoping the problem will go away. It is an argument that needs a resolute and determined mind. But it has always been the salesman's responsibility not only to persuade the buyer to purchase his product as opposed to that of a competitor, but also to provide the justifications for the type of product concerned in terms of cost/benefits in the context of prevailing circumstances.

Often the promise of

Puzzle Answer

ALL fifth powers have the same final digit as the original number, so the last figure of 1975 must be a 5.

recession can provide an ideal opportunity for the salesman to close an extended negotiation: "Now that there is some likelihood of economic difficulties that could affect your industry quite considerably, it is most important that you take every possible step to raise your efficiency to the highest level in order to ensure survival in what will be an increasingly competitive marketplace. A decision to proceed now, while funds can still be made available, will avoid a possible situation where you are in urgent need of increasing efficiency without the ability to fund it."

You could be selling anything — photocopyers to aero-engines, vending machines to computers. The argument is still the same.

When it comes to selling any non-luxury product, the buyer's use of a statement that sounds anything like "I cannot make a decision because of prevailing economic circumstances" is not providing a reason; he is making an excuse.

TRADER

Fortronic moves south

FORTRONIC of Dunfermline, Manxman Tally distributor in Scotland, is to extend its territory south of the border to become the exclusive sales and service agent for Northumberland, Cumbria, Durham, Tyne & Wear and Cleveland. An office is to be opened in Newcastle.

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New premises

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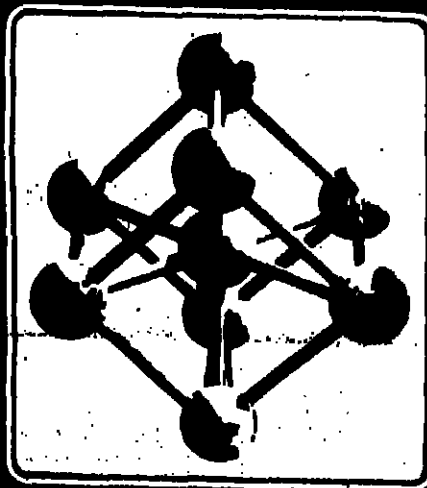
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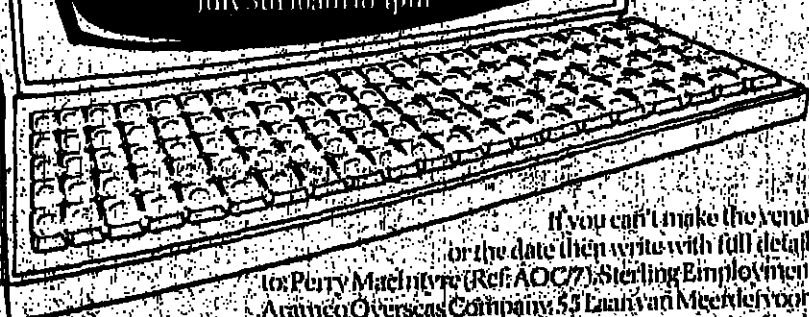
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+ Benefits
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